

CHANGE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

8400.10 CHG 3

7/31/90

SUBJ: AIR TRANSPORTATION OPERATIONS INSPECTOR'S HANDBOOK

1. PURPOSE. This change transmits the following:

- a. Volume 1. General Concepts, Direction, Guidance and Definitions
Chapter 2. The FAA and Flight Standards: History, Organization, and the Federal Aviation Act
sections 1. and 2.
- b. Volume 4. Aircraft Equipment and Operational Authorizations
Chapter 2. All-Weather Terminal Area Operations
section 4.
- c. Volume 6. Surveillance
Chapter 1. General Policies and Procedures
sections 1. and 2.

Chapter 2. Specific Types of Inspections
sections 1. through 4.
- d. Appendix 3. Handbook Bulletins
Bulletins 90-1 through 90-4

2. EXPLANATION OF CHANGES. The direction and guidance published in this change supersedes RELATED information in FAA Orders 8430.1D and 8430.6C. Major portions of both 8430.1D and 8430.6C remain in effect.

- Handbook Bulletin 90-1 is a revised table of contents for Order 8430.1D showing which sections of that order remain in effect.
- Handbook Bulletin 90-2 is a revised table of contents for Order 8430.6C showing which sections of that order remain in effect.

- Handbook Bulletin 90-3 is interim guidance for adding a new aircraft to a certificate or for operators starting operations under a new operating rule.
- Handbook Bulletin 90-4 is a cross-reference table inspectors may use to convert references to the superseded sections of Part 91 to the August 1990 recodification of Part 91.

3. DISPOSITION OF TRANSMITTAL. This transmittal is to be retained and filed in the back of this handbook until it is superseded by a new basic order.

PAGE CONTROL CHART

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CHAPTER 2. THE FAA AND FLIGHT STANDARDS: HISTORY, ORGANIZATION, AND THE FEDERAL AVIATION ACT

SECTION 1. HISTORY AND ORGANIZATION OF THE FEDERAL AVIATION ADMINISTRATION

41. EARLY AVIATION REGULATORY AUTHORITY AND RESPONSIBILITIES.

A. The need for an aviation regulatory authority was recognized in the early 1920's, however, the numerous bills introduced to the U.S. Congress attempting to establish it were unsuccessful. It was not until the Air Mail Act was enacted in early 1925 that the American air carrier industry began and the need for an aviation regulatory authority became imperative. As a result of this act, the Post Office Department began to give air mail contracts to newly-formed air carriers financed by individuals such as William A. Rockefeller and Henry Ford. The air carrier industry activity that began that year was minimal, yet this activity along with requests from industry for federal aviation safety regulations, prompted legislative proposals for an Air Commerce Act.

B. The Air Commerce Act was enacted in 1926. This act commissioned the Secretary of the Department of Commerce to be responsible for fostering air commerce, issuing and enforcing air traffic rules, certifying pilots and aircraft, and operating and maintaining air navigation aids. In 1936, the Department of Commerce became responsible for controlling en route air traffic, which soon became its most demanding civil aviation responsibility.

C. By 1937, the air carrier industry had expanded so rapidly that the functional responsibilities for aviation activity within the Department of Commerce had become fragmented. For example, airway beacons had become the responsibility of the Department of Lighthouses while aviation maps had become the responsibility of the Coast and Geodetic Survey organization. This fragmentation and the lack of formal procedures for establishing aviation regulations resulted in numerous Presidential Executive Orders pertaining to air carrier issues. In an attempt to deal with this problem, the Bureau of Air Commerce

published a biweekly magazine entitled the Air Commerce Bulletin to disseminate information about aviation operations and regulations.

D. The inadequacy of the Air Commerce Bulletins led to the passage of the Federal Register Act in 1937. The Federal Register Act made it mandatory that all federal regulations be codified into a Code of Federal Regulations.

E. In 1938, as a result of a need to modify the Air Commerce Act and a disastrous air safety record in the preceding years, the Civil Aeronautics Act was enacted. The Bureau of Air Commerce was replaced by the newly formed Civil Aeronautics Authority (CAA). The CAA was given the additional authority to issue air carrier route certificates and to regulate airline fares. In 1940, the CAA was divided into the Civil Aeronautics Board (CAB) and the Civil Aeronautics Administration (CAA). The CAB was established as an independent agency and was given the authority and responsibility for economic and safety rulemaking and for accident investigations. The CAA was reassigned to the Department of Commerce and was given the responsibility for air traffic control, airman and aircraft certification, safety enforcement, and airway development. In 1946, the CAA was also given the responsibility to oversee a federal-aid airport program.

43. ESTABLISHMENT OF THE FAA.

A. After World War II, from 1945 to 1958, the rapid growth of air commerce, aviation technology, and an increasing public demand for air services caused the aviation industry to reach unforeseen levels of complexity. Under the Department of Commerce, the CAA could not efficiently or adequately fulfill its responsibilities because of drastic reductions in federal spending and appropriations for aviation functions. For example, in 1954, only half of the scheduled VOR and DME facilities had been commissioned. Long-range radar systems were delayed

until 1956. This situation, coupled with several major, mid-air collisions in 1956 and 1957 raised public concern about aviation safety issues and led to the enactment of the Federal Aviation Act in 1958.

B. The Federal Aviation Act (FA Act) transformed the CAA into an independent agency and renamed it the Federal Aviation Agency (FAA). The FAA was given, in addition to all former CAA responsibilities, sole responsibility for developing and maintaining a common civil/military system of air navigation and air traffic control, and the safety and rulemaking functions of the CAB.

C. In 1967, Congress placed the Federal Aviation Agency in the newly created Department of Transportation (DOT) and renamed it the Federal Aviation Administration (FAA). This action was based on the belief of Congress, the executive branch, and the transportation industry that integrated and balanced transportation systems were necessary to meet the nation's transportation needs. It was also believed that the nation's transportation systems could be managed better by a single department. Congress subsequently amended the FA Act, enlarging the FAA role in aviation security, aircraft noise abatement, and airport certification. An Airport and Airway Development Act authorized the FAA Administrator to establish minimum safety standards for airports and to issue operating certificates to air carrier airports meeting those standards.

45. EARLY ORGANIZATIONAL STRUCTURES OF THE FAA.

A. In 1927, the Department of Commerce employed 234 persons working in the Air Regulations Division and the Air Information Division. When the CAA was created, it was administered by five appointed officials with authority to regulate civil aviation. The Air Safety Board, an associated agency, was responsible for investigating accidents, determining probable cause of each accident, and making recommendations for accident prevention. From 1938 through 1958, the number of CAA employees grew from 2,900 to 25,800. In 1958, six domestic regions, one international region, the Aeronautical Center, and a Technical Development and Evaluation Center (FAA Technical Center), were directly responsible to the CAA Administrator. Within the CAA headquarters a major operational office was directed by the Assistant Administrator for Operations. A subordinate office to the Assistant Administrator for Operations was called the Office of Aviation Safety. The Office of Aviation Safety was the predecessor of the Bureau of

Flight Standards. Other subordinate offices reporting to the Assistant Administrator for Operations were the Office of Federal Airways, the Office of Airports, and Washington National Airport.

B. The first year of the newly-formed independent Federal Aviation Agency was 1959. The FAA Washington headquarters organizational structure was as follows:

- (1) Three staff level Assistant Administrators
 - Management Services
 - Plans and Requirements
 - Personnel and Training
- (2) Five specialized offices
 - General Counsel
 - Civil Air Surgeon
 - Congressional Liaison
 - Public Affairs
 - International Coordination
- (3) Five operational bureaus
 - Research and Development (included the FAA Technical Center)
 - Flight Standards
 - Facilities and Material
 - Air Traffic Management
 - National Capital Airports

C. In 1959, the FAA regional organizational structure included six domestic regions, one international region, and the Aeronautical Center. Three years later (1961) the FAA set up a "straightline" structure which provided the five operational bureaus (see paragraph 45B(3)) with tighter control of field operations. In 1962, these operational bureaus were transformed into staff services and the number of regions increased from five to seven domestic regions (Eastern, Southern, Southwest, Central, Western, Alaska, and Hawaiian) which reported directly to the FAA Administrator. The number of regions increased to nine in 1971 with the addition of the Great Lakes Region and the New England Region. Ten years later (1981) the Western and Hawaiian regions were reorganized into the Western Pacific Region and the Northwest Mountain Region.

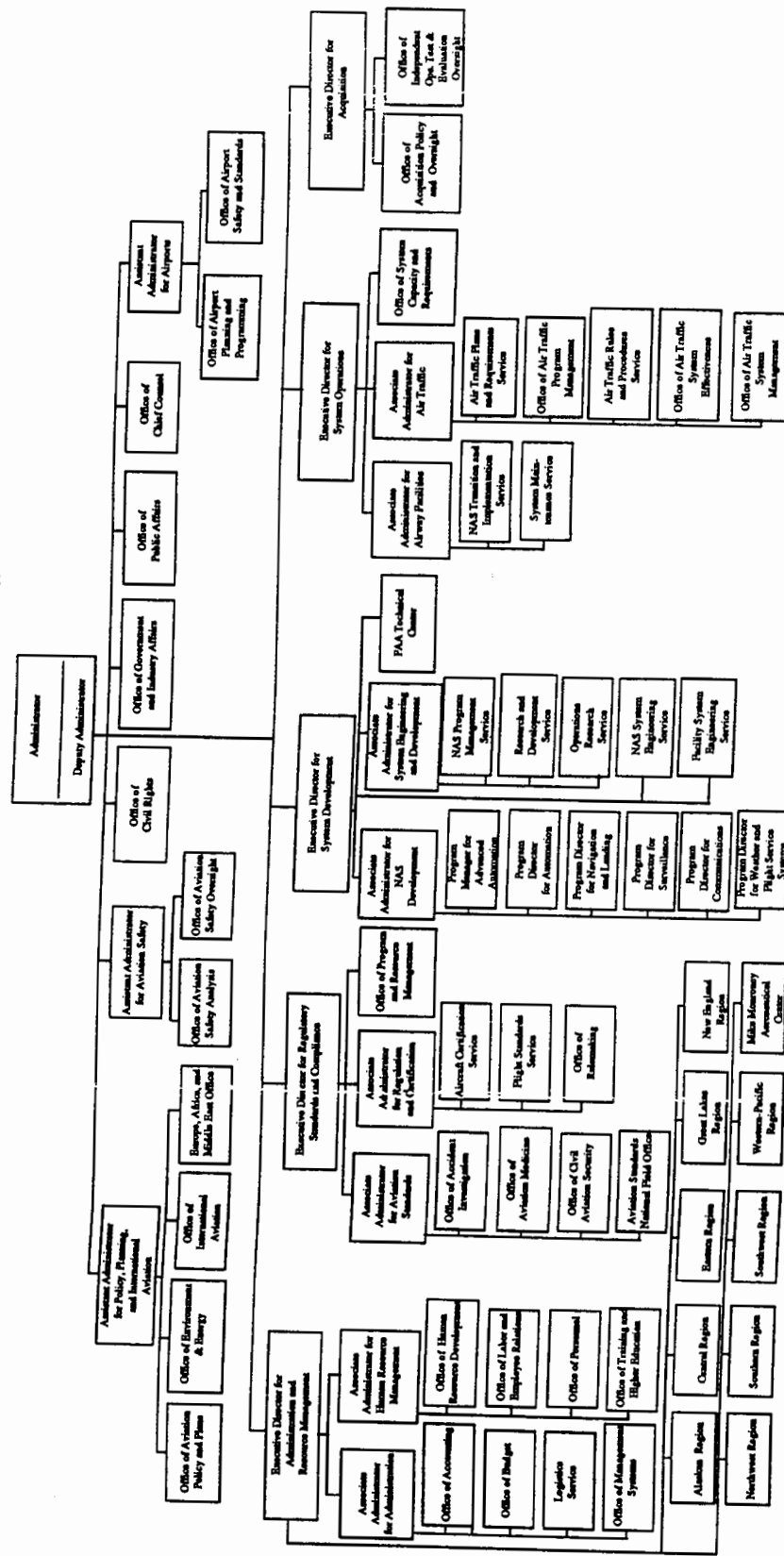
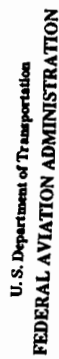
47. **CURRENT FAA ORGANIZATIONAL STRUCTURE (1989).** The Federal Aviation Administration (FAA) currently consists of approximately 48,000 employees. In the 1988 reorganization, certain areas of functional responsibility were centralized because it was believed that a higher degree of standardization and control would be beneficial. Other areas of functional responsibility remained decentralized when it was apparent

that efficiency would be enhanced by such an organizational structure. At Washington headquarters, in addition to the specialized offices that perform staff functions for the FAA Administrator, four Executive Directors who report directly to the Administrator were established during the reorganization in 1988. Ten Associate Administrators are also based at Washington headquarters. The Associate Administrators report directly to their respective Executive Directors who are responsible for the development of national policy, regulations, methods, and other headquarters functions of the FAA. There are nine domestic regional offices and the Aeronautical Center whose administrators report directly to the Executive Director for Policy, Plans, and Resource Management. The Flight Standards Service

reports to the Associate Administrator for Regulation and Certification, which is one of three offices that report to the Office of the Executive Director for Regulatory Standards and Compliance. Regional flight standards division managers based at regional headquarters report directly to the Director of Flight Standards Service and are responsible for managing and executing the daily operational programs of the Flight Standards Service through a system of district offices. The flight standards division managers within the regions serve as the focal point for all flight standards activities within their respective regions. These division managers serve as consultants to the regional administrators on behalf of the Director of Flight Standards Service. Figure 1.2.1.1 is an illustration of the 1989 organization of the FAA.

[PAGE 1-44 RESERVED]

FIGURE 1.2.1.1
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION (1989)



07/20/90

49. HISTORY OF FLIGHT STANDARDS. When the FAA was created in 1958, the Bureau of Flight Standards was established as one of five operating bureaus within the FAA. This bureau had the responsibility for most of the safety functions of the earlier Office of Aviation Safety at the Department of Commerce. In 1967, the name "Bureau of Flight Standards" was changed to Flight Standards Service. The director of this service reported directly to the FAA Administrator. The Flight Standards Service was later assigned as one of several offices within the Office of Associate Administrator for Aviation Standards which had been established in January 1979. In July of 1979, three new offices, Flight Operations, Airworthiness, and Aviation Safety, absorbed the safety functions previously assigned to the Flight Standards Service. Most headquarters flight standards functions were performed by the Office of Flight Operations and the maintenance division of the Office of Airworthiness. In November 1984, the Office of Aviation Safety was reassigned as a staff office reporting directly to the Office of the Administrator. In November 1986, the Office of Flight Standards was created at FAA headquarters by combining the Office of Flight Operations and the maintenance division from the Office of Airworthiness. With this change, flight standards safety responsibilities were aligned at the three flight standards organizational levels (headquarters, regional, and district offices). In 1988, the Office of Flight Standards was redesignated as the Flight Standards Service.

51. CURRENT ORGANIZATION OF FLIGHT STANDARDS SERVICE.

A. Headquarters Organization. The Flight Standards Service (AFS), the Aircraft Certification Service (AIR), and the Office of Rulemaking (ARM) report to the Associate Administrator for Regulation and Certification (AVR) (see figure 1.2.1.2). The Flight Standards Service consists of five divisions which report to the Director of Flight Standards Service. The five divisions are: the Air Transportation Division (AFS-200), the Aircraft Maintenance Division (AFS-300), the Technical Programs Division (AFS-400), the Field Programs Division (AFS-500), and the General Aviation and Commercial Division (AFS-800). See figure 1.2.1.3 for the general responsibilities of each of these divisions.

B. Regional Organization. The regional headquarters are organized into special staffs and operating divisions similar to those at Washington headquarters. One of the regional divisions is the Flight Standards Division, commonly referred to as the "200 Division." Flight standards district offices (FSDO's), through office managers, report directly to regional flight standards division managers. Regional flight standards divisions and FSDO's are responsible for accomplishing special regional programs as well as the national policies and programs developed by the Director of Flight Standards Services (based at Washington headquarters). Regional flight standards division managers report directly to the Director of Flight Standards Service (AFS-1) (see figure 1.2.1.2).

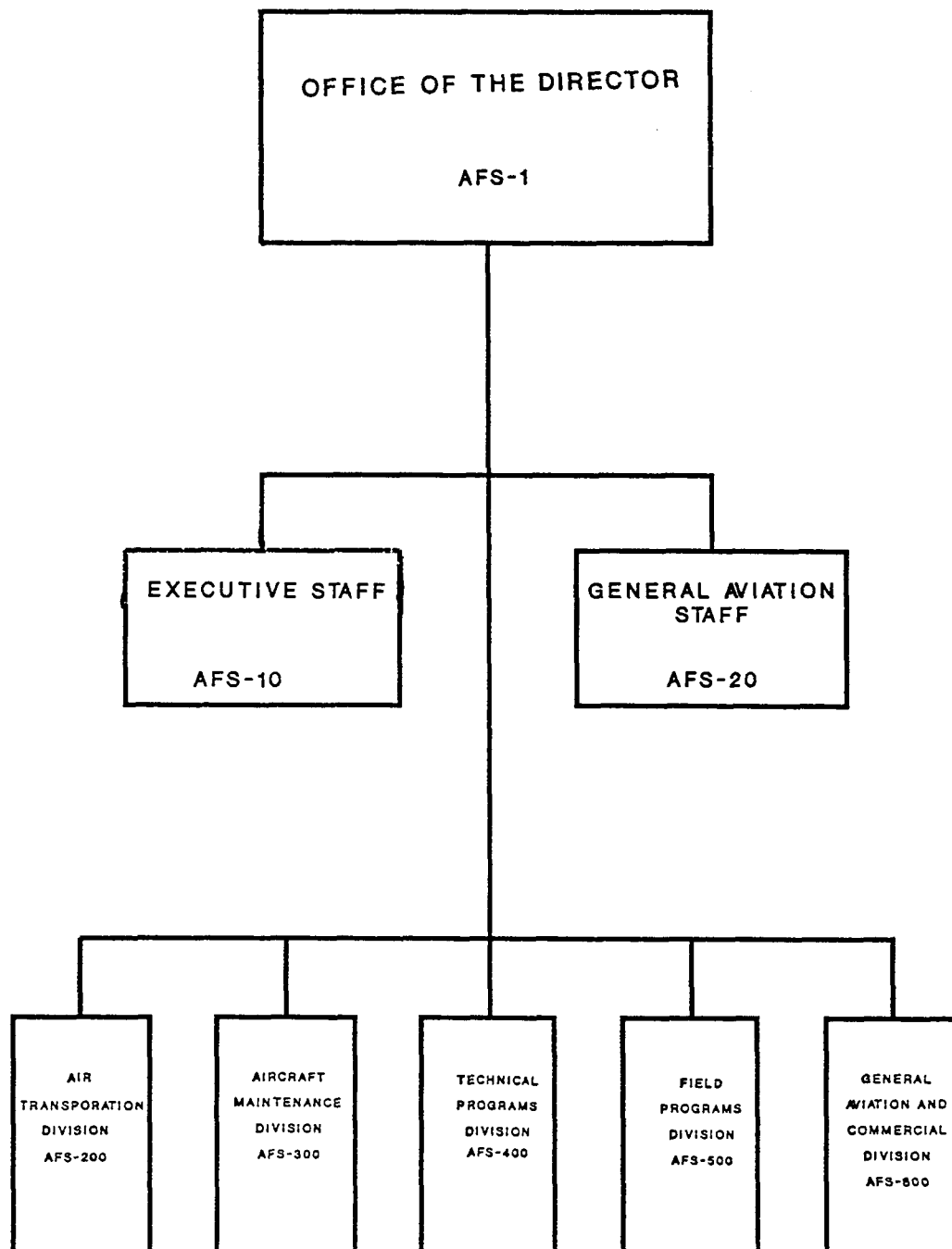
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FIGURE 1.2.1.3
OFFICE OF FLIGHT STANDARDS SERVICE
ORGANIZATIONAL STRUCTURE



53. FLIGHT STANDARDS SERVICE MISSION.

A. The Flight Standards Service (AFS) is responsible for the certification and regulation of the users of the National Airspace System (NAS). Specifically, the Flight Standards Service mission is stated as follows:

To promote safety of flight of civil aircraft in air commerce by setting certification standards for air carriers, commercial operators, air agencies, and airmen; and by directing, managing, and executing certification, inspection, and surveillance activities to assure the adequacy of flight procedures, operating methods, airman qualifications and proficiency, aircraft maintenance and maintenance aspects of continued airworthiness programs.

B. The Flight Standards Service is specifically responsible for the following:

- Certification, operating methods, flight operations, and maintenance activities of U.S. air carriers and foreign air carriers operating in and over the U.S.
- Maintenance standards for U.S.-registered aircraft (including continued airworthiness)
- Certification and conduct of commercial, industrial, private, and general aviation operations
- Examination and certification (except medical) of airmen
- Examination and appointment of persons designated and authorized to act as representatives of the FAA Administrator with respect to the certification of airmen and the maintenance of civil aircraft and products
- Use of air navigation facilities and appliances and systems used in civil aircraft; the minimum equipment capability of civil aircraft for operating in the National Airspace System (NAS) and other established environments; and the operational aspects of flight procedures including en route and instrument approach procedures (except air traffic control)
- Approval of, and surveillance over, the aircraft maintenance programs of operators and pilot schools

- Assurance that appropriate operational considerations are accommodated with regard to aircraft maintenance policies, procedures, and practices
- Establishing operating requirements and criteria for the use of aircraft systems
- Assurance that appropriate policies and practices and other operational considerations are accounted for in the operating limitations and information requirements, in the development of airplane and rotorcraft flight manuals
- Recommending quantities, priorities, and locations for approach and landing navigation aids and visual aids for the National Airspace System Plan
- Issuance, amendment, and termination of rules and regulations promulgated under Title III "Organization of Agency and Powers and Duties of Administrator" and Title VI "Safety Regulation of Civil Aeronautics" of the FA Act that are within the purview of Flight Standards
- Issuance, amendment, and termination of standard instrument approach procedures, minimum en route altitudes, flight procedures, operational weather minimums, and minimum equipment requirements
- Granting or denying exemptions from regulations and taking final action on any request or petition for reconsideration

55. FUNCTIONAL ORGANIZATION OF FLIGHT STANDARDS SERVICE.

A. The Flight Standards Service programs are carried out nationwide by a workforce of approximately 3000 aviation safety inspectors and support personnel. The functions of the Flight Standards Service are managed and executed through the Office of the Director (AFS-1), three staff elements, three policy divisions, one technical programs division and one national field programs division at Washington headquarters. There are nine regional divisions with 91 flight standards district offices and satellite offices located throughout the U.S. and its territories. The flight standards staff of the Europe, Africa, and Middle East Office (AEU) is located in Brussels, Belgium, with a district office in Frankfurt, Germany. The AEU office also reports to AFS-1.

B. The Office of the Director of Flight Standards Service consists of three subordinate staff organizations in addition

to the Director's and Deputy Director's administrative staff. These staff organizations are the Executive staff, the General Aviation staff, and the Project Safe staff. They each serve as an extension of the Director and assist the Director in carrying out management functions for accomplishing the Flight Standards Service mission. The Executive staff provides support to the Director for service-wide management activities. It also is responsible for ensuring that Flight Standards Service resource requirements such as people, automation, and facilities are adequately identified, planned, and budgeted for through Flight Standards Service national systems. These resource requirements must be appropriately distributed to adequately meet the certification, surveillance, and enforcement workload demands generated by the industry nationwide. It is also responsible for administrative support services for Washington headquarters managers and employees. The General Aviation staff is the focal point for the aviation community at the national level concerning general aviation affairs, accident prevention, airshows, and sport aviation.

C. There are three Flight Standards Service (AFS) policy divisions. These policy divisions are the Air Transportation Division (AFS-200), the Aircraft Maintenance Division (AFS-300), and the General Aviation and Commercial Division (AFS-800). These divisions are responsible for the development and interpretation of regulations, policies, and guidance for the certification, inspection, and surveillance of air operators, air agencies, and airmen. Each policy division is assigned an area of functional responsibility according to specific expertise and organizational alignment. These divisions are responsible for determining the standards to be used for the certification of air operators, air agencies, and airmen.

D. The Technical Programs Division (AFS-400) is the AFS division which provides coordination and leadership for research and development programs, all-weather programs, and human factors programs. This division also sets national operational requirements for en route procedures and instrument approach procedures.

E. The Field Programs Division (AFS-500) provides nationwide oversight and coordination for the implementation of operational programs. This division develops and publishes national program guidelines for the annual work program and executes the National Aviation Safety Inspection Program (NASIP). This division also provides national standardization and guidance for the administration of large air carrier certificates. The AFS-500 division has responsibility for

inspector training, including the annual call for training requirements. AFS-500 also provides national oversight for the maintenance of human resource management systems concerning inspector job performance (such as currency of job task analysis, position descriptions, and performance standards).

F. The regional flight standards divisions and the flight standards staff of the AEU office are responsible for managing and executing the daily operational programs of the Flight Standards Service through a system of district offices. The AFS division managers within the regions have the responsibility for all flight standards activities within their respective regions. The regional flight standards division staffs provide management support to the district offices for the execution of certification, surveillance, investigation, and enforcement functions. The AEU Flight Standards staff is the focal point for aviation safety activities in the European, African, and Middle Eastern areas. Most domestic regional flight standards divisions have international responsibilities for specific geographical areas outside the United States. For example, the Western Pacific Flight Standards Division is responsible for Asia and the Pacific territories and countries. Divisions with international responsibilities also provide consultative and liaison services to other countries on flight safety, certification, surveillance, and enforcement.

57. GOALS OF FLIGHT STANDARDS SERVICE.

A. The primary goal of the Flight Standards Service is to ensure continued enhancement of flight safety. This goal is particularly significant in view of economic deregulation; new technological developments; international manufacturing and repair of aircraft equipment; and the public demand for increased services. The Flight Standards Service must ensure that Federal Aviation Regulations (FAR's) and FAA policy address these aspects of the aviation environment. The Flight Standards Service must enhance operational safety through aggressive aviation education programs and seminars for industry and the flying public. The Flight Standards Service must explore options for economic incentives and creative solutions for the improved safety compliance of operators.

B. Internally, the Flight Standards Service must ensure optimum availability and use of resources (manpower, financial, equipment, and information) to meet workload requirements brought on by changes in the industry. Systematic forecasting and planning for environmental and industrial changes are required to ensure adequate definitions of new programs and the adaptation of existing programs and work priorities. The Flight Standards Service

needs to systematically evaluate whether national initiatives and ongoing line operations meet certification and surveillance program objectives. The permanent goals for the Flight Standards Service include the following:

- Adequate and appropriate airman training and certification
- Adequate operator certification and improvement of operator compliance
- Promotion, surveillance, and assessment of aviation safety in the operating environment
- Support for National Airspace System (NAS) capacity requirements
- Research and development of human factors relating to aviation safety
- Effective and efficient resource management policies, systems, and procedures

58. - 62. RESERVED.

[PAGES 1-53 THROUGH 1-56 RESERVED]

VOLUME 1. GENERAL CONCEPTS, DIRECTION, GUIDANCE AND DEFINITIONS

CHAPTER 2. THE FAA AND FLIGHT STANDARDS: HISTORY, ORGANIZATION, AND THE FEDERAL AVIATION ADMINISTRATION

SECTION 2. THE FEDERAL AVIATION ACT

63. THE FEDERAL AVIATION ACT OF 1958. The Federal Aviation Act (FA Act) was signed into law on August 23, 1958. This public law created the FAA (then called the Federal Aviation Agency) and empowered it to promote flight safety in air commerce by prescribing safety standards. It gave the regulatory authority of aviation functions to two independent agencies: the FAA and the Civil Aeronautics Board (CAB). The CAB retained responsibility for the economic regulation of air carriers and for the investigation of aircraft accidents. In Section 103 of the FA Act, the FAA was given five basic responsibilities, which remain unchanged, and are summarized as follows:

- Regulation of air commerce to best promote its development and safety and to fulfill national defense requirements
- Promotion, encouragement, and development of civil aeronautics
- Control of the use of navigable U.S. airspace and the regulation of both civil and military operations in that airspace in the interest of the safety and efficiency
- Consolidation of air navigation facility research and development, as well as the installation and operation of those facilities
- Development and operation of a common air traffic control and navigation system for military and civil aircraft

65. EVOLUTION OF AIR COMMERCE SAFETY REGULATION. In Article I, Section 8 of the U. S. Constitution, Congress is given the power to regulate and control interstate commerce. Interstate highway, railway, and water modes of transportation were regulated before the advent of air transportation. Air transportation was

not regulated until the Air Commerce Act of 1926 empowered the Secretary of Commerce to establish the necessary regulatory system to control and regulate air commerce. The initial regulatory system that was established evolved into an organized system of Civil Aviation Regulations (CAR's). The CAR's were supplemented by corresponding Civil Aviation Manuals (CAM's) which contained policies, procedures, and an interpretation of each CAR section. The CAR's and CAM's became outmoded with the rapid growth of air transportation and with the introduction of turbojet transport category airplanes in the 1950's. Recodification of the CAR's began in 1961 and was completed in 1964 with the adoption of the Federal Aviation Regulations (FAR's).

67. AVIATION PROMOTION AND REGULATION. Civil aviation regulation and promotion are clearly identified in the FA Act as major FAA responsibilities. The FAA promotes safe and efficient civil aviation by establishing and maintaining federal airways (including NAVAID's), and by supporting airport development, air traffic control services, and aviation educational programs. The FAA's principal responsibility in regulating aviation is to ensure safety at all levels of aviation activity. In fostering air safety through regulation, the FAA promotes civil aviation and helps to ensure its future. Safety of flight is dependent upon the regulation and enforcement of these regulations. Many other nations use the U.S. FAR's as regulatory models for their civil aviation programs.

69. THE NATIONAL TRANSPORTATION SAFETY BOARD. The National Transportation Safety Board (NTSB) was established by the Department of Transportation Act and was made a part of DOT on April 1, 1967. The NTSB was given the CAB functions, powers, and duties concerning aviation accident investigations, formulating probable cause of accidents, and making aviation safety improvement recommendations. On April 1, 1975, the NTSB was made an independent agency. By becoming independent of DOT, the NTSB was put in a

more objective position for handling evaluations of DOT and FAA actions and officials, and for formulating safety recommendations. Although FAA personnel do participate in aviation accident investigations conducted by the NTSB, they are not permitted to participate in determining the "probable cause" of any aviation accident investigated by the NTSB. At the request of the NTSB, certain aviation accidents are investigated by the FAA. The facts, conditions, and circumstances of these accidents are reported to the NTSB, and the NTSB determines "probable cause." Based on accident investigation findings, the NTSB recommends changes in aviation regulations, procedures, and equipment to improve aviation safety.

71. TRANSFER OF CAB FUNCTIONS TO DOT.

The Airline Deregulation Act (ADA) was enacted on October 24, 1978. This act expressed the intention of Congress to diminish federal regulation of airline economics. This act abolished the CAB on December 31, 1984. On January 1, 1985, the administrative functions of the CAB were transferred to the Office of the Secretary of Transportation (OST). Included among these administrative functions was the requirement that air carriers be fit, willing, and able to perform as air carriers. Such air carriers must hold economic certificates or an exemption under the FA Act to provide air transportation to the public.

73. FLIGHT STANDARDS SERVICE AND THE FA ACT. The FAA regulatory authority to prescribe, revise, and enforce standards is in Title VI of the FA Act, "Safety Regulation of Civil Aeronautics." Title VI is the foundation for the present structure of the Flight Standards Service. The Flight Standards Service is directly responsible for specific sections of Title VI while other sections of Title VI are the responsibility of other FAA offices. The Flight Standards Service, however, has surveillance and enforcement responsibilities related to all sections of Title VI. The sections of Title VI are briefly described as follows:

A. Section 601. General Safety Powers and Duties. This section empowers the FAA to promote flight safety for civil aircraft in air commerce. The Administrator has the duty to require minimum standards for governing practices, methods, and procedures to provide for national security and safety in air commerce.

B. Section 602. Airman Certificates. The FAA is authorized to issue airman certificates which specify the capacity in which holders are authorized to serve as airmen.

C. Section 603. Aircraft Certificates. The FAA is authorized to issue type certificates for aircraft, aircraft engines, and propellers. The Administrator can specify, in regulations, the appliances for which the issuance of type certificates is reasonably required, and can also issue those certificates.

D. Section 604. Air Carrier Operating Certificates. The FAA is empowered to issue air carrier certificates and to establish minimum safety standards for the operation of the air carrier to whom the certificate is issued.

E. Section 605. Maintenance of Equipment in Air Transportation. In this section, each air carrier is given the duty to perform inspections, maintenance, overhaul, and repair of all equipment used in air transportation as required by the FA Act and the orders, rules, and regulations of the FAA.

F. Section 606. Air Navigation Facility Rating. The FAA is authorized to inspect, classify, and rate the suitability of any air navigation facility available for the use of civil aircraft. The Administrator is also authorized to issue a certificate for any such navigation facility.

G. Section 607. Air Agency Rating. The FAA is authorized to provide for the examination and rating of air agencies, such as civilian flight schools, repair stations, and other air agencies. The Administrator is also authorized to issue certificates for these flight schools, repair stations, and air agencies.

H. Section 608. Forms of Applications. The FAA is authorized to prescribe the form and content of applications for certificates. The Administrator may require that these applications be administered under oath.

I. Section 609. Amendment, Suspension, and Revocation of Certificates. The FAA may issue orders which amend, modify, suspend, or revoke, in whole or in part, any type of certificate issued. Any person whose certificate is affected by an order of the Administrator under this section may appeal the Secretary's order to the NTSB.

J. Section 610. Prohibitions. This section prohibits any person or organization from conducting any air commerce operation unless they have proper certification and hiring personnel who are properly certificated. This section also prohibits persons or organizations from performing any aviation services contrary to regulations prescribed under Title VI of the FA Act.

K. Section 611. Control and Abatement of Aircraft

Noise and Sonic Boom. This section provides that the FAA, after consultation with the Secretary of Transportation and the Environmental Protection Agency (EPA), shall prescribe and amend standards and regulations for the measurement of aircraft noise and sonic boom.

L. *Section 612. Airport Operating Certificates.* The Administrator is authorized to issue or exempt airport operating certificates to airports serving air carriers certificated by DOT and to establish safety standards for the operation of those airports.

75. PRIVATE SECTOR RESPONSIBILITIES.

A. The term "private sector," when applied to aviation, encompasses all individuals and organizations participating in air commerce. While individuals and organizations such as pilots, mechanics, air carriers, and manufacturers participate directly in air commerce, other individuals and organizations such as vendors, food caterers, travel agents, baggage handlers, and aircraft sales participate indirectly. The FAA, which is part of the "public sector," has the duty (authorized by the FA Act under Title VI, "Safety Regulations of Civil Aeronautics") to establish minimum standards, rules, and national policies to provide adequately for national security and safety in air commerce. This responsibility for aviation safety, however, does not rest entirely with the FAA. Persons or organizations of the "private sector" are also obligated to provide for public safety. All airmen, air carriers, aircraft owners and operators, air agencies, and certain airport operators who qualify for and accept an FAA certificate, assume these "private sector" responsibilities.

B. A major part of air commerce is conducted by "private" persons or organizations engaged in air transportation. These persons or organizations are referred to as air carriers and are involved in the "common carriage" by aircraft, for compensation or hire, of persons, property, or mail. The FA Act requires a classification of safety standards appropriate to the differences between air transportation and other forms of air commerce. Therefore, safety standards applicable to air transportation (air carriers) are more stringent than standards applicable to persons or organizations not involved in common carriage.

77. AIR CARRIER RESPONSIBILITIES FOR PUBLIC SAFETY.

A. Section 601(b) of the FA Act specifies, in part,

that when prescribing standards and regulations and when issuing certificates, the FAA shall give full consideration "to the duty resting upon air carriers to perform their services with the highest possible degree of safety in the public interest..." The FA Act charges the FAA with the responsibility for promulgating and enforcing adequate standards and regulations. At the same time, the FA Act recognizes that the holders of air carrier certificates have a direct responsibility for providing air transportation with the highest possible degree of safety. The meaning of Section 601(b) of the FA Act should be clearly understood. It means that this responsibility rests directly with the air carrier, irrespective of any action taken or not taken by an FAA inspector or the FAA.

B. Before certification, the FAA's objective is to make a factual and legal determination that a prospective certificate holder is willing and able to fulfill its duties as set forth by the FA Act and to comply with the minimum standards and regulations prescribed by the FAA. This objective continues after certification. If a certificate holder fails to comply with the minimum standards and regulations, Section 609 of the FA Act specifies that the FAA may reexamine any certificate holder or appliance. As a result of an inspection, a certificate may be amended, modified, suspended, or revoked, in whole or in part. Additionally, Section 605(b) generally provides that whenever an inspector finds that any aircraft, aircraft engine, propeller, or appliance, used or intended to be used by any air carrier in air transportation, is not in condition for safe operation, the inspector shall notify the air carrier and the product shall not be used in air transportation until the FAA finds the product has been returned to a safe condition.

C. The following conditions or situations could indicate that an air carrier's management is unable or unwilling to carry out its duties as set forth by the FA Act:

- Repetitive noncompliance with minimum standards and regulations
- Insufficient training programs and guidance
- Lack of concern or enthusiasm on the part of air carrier management for compliance with the FA Act and the FAR's
- Lack of operational control of aircraft
- Lack of ensuring the airworthiness of aircraft
- Inaccurate recordkeeping procedures

The FA Act and the FAR's contain the principle that air carriers holding out services to the public must be held to higher standards than the general aviation community. Inspectors must also be aware of the private rights of citizens and air carriers. Since public safety and national

security are among the FAA's highest priorities, FAA inspectors must be prepared to take action when any air carrier does not, or cannot, fulfill its duty to perform services with the highest possible degree of safety.

78. - 80. RESERVED.

[PAGES 1-61 THROUGH 1-80 RESERVED]

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*TBD=TO BE DEVELOPED

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VOLUME 4. AIRCRAFT EQUIPMENT AND OPERATIONAL AUTHORIZATIONS

CHAPTER 2. ALL-WEATHER TERMINAL AREA OPERATIONS

SECTION 4. CATEGORY I OPERATIONS

531. GENERAL. This section provides FAA inspectors with the necessary concepts and direction and guidance for evaluating and approving or denying operator requests for authorization to conduct CAT I all-weather terminal area (AWTA) IFR approach and landing operations. This information must be used when an operator applies for an authorization to use either aircraft; airborne, ground-based or space-based equipment; or operational procedures that are new to the operator. It must also be used when an operator applies to operate at airports or on runways where there are special AWTA IFR operational requirements or procedures which the operator has not previously complied with or used. This section amplifies the general concepts, policies, and direction and guidance provided in previous sections 1, 2, and 3 of this chapter. Specific standards are provided for evaluating CAT I AWTA operations using airborne and ground-based or space-based equipment which have well understood operational characteristics and limitations. In cases where an operator requests approval to conduct CAT I AWTA operations using equipment, concepts, and/or procedures not covered in these standards, a request for policy and direction and guidance shall be forwarded through the regional flight standards division to AFS-400.

533. DEFINITION OF CAT I APPROACH AND LANDING OPERATIONS. For the purpose of this handbook, CAT I AWTA operations are defined as all approach and landing operations conducted under IFR weather conditions in accordance with an instrument approach procedure using CAT I operating minimums. CAT I operating minimums specify a minimum IFR altitude/height (MDA or DH) not lower than the equivalent of 200 feet above the touchdown zone and a visibility/RVV not lower than the equivalent of 1/2 statute mile or RVR 1800. All IFR AWTA operations with operating minimums of less than MDA/DH of 200 feet and/or with a visibility/RVV of less than 1/2 statute mile or less than RVR 1800 are either CAT II or CAT III operations.

A. Types of CAT I Operations. CAT I operations

include both precision and nonprecision straight-in instrument approaches as well as those instrument approaches which require a circling maneuver to complete a landing on the intended runway. When authorized by the instrument approach procedure, a circling maneuver can be used to visually maneuver the aircraft to a landing after completion of the instrument approach to circling MDA.

B. Objective of CAT I AWTA Operations. The essential difference between an approach to a runway made under visual flight rules (VFR approach) and a CAT I AWTA operation (instrument approach) is that an instrument approach procedure is required to safely accomplish the approach and landing or missed approach. The primary objective of a CAT I AWTA operation is twofold. First, the operation must provide for the safe and orderly transition of an aircraft, under instrument flight conditions, from the en route cruising phase of flight through the initial approach segments to a point on final approach from which a visual landing can be made. Secondly, if a visual landing cannot be accomplished, the CAT I AWTA operation must provide a missed approach that can be safely executed throughout the missed approach segment for a transition back to the en route structure for diversion to an alternate airport. To meet these objectives, an instrument approach procedure must define the tracks to be flown with the associated heights and must specify the minimum heights at which the required obstacle clearances are assured when an aircraft is flown in IFR conditions.

535. GENERIC CAT I OPERATIONAL CONCEPTS. The weather and environmental conditions encountered in CAT I AWTA operations may result in the restriction of seeing-conditions to the extent that the external visual references necessary for controlling the aircraft by visual means are not available during all segments of the approach. Therefore, to a certain point in the approach, the aircraft must be operated and controlled by reference to flight instruments and navigational instruments, and then it must be operated by reference to a combination of flight instruments and external visual information.

A. *Purpose of Operating Minimums.* CAT I operating procedures and minimums are established to ensure that the desired level of safety is achieved in the reduced seeing-conditions associated with such operations. The purpose of operating minimums is to ensure that the combination of information available from the aircraft instruments and external visual sources is sufficient for the safe operation of the aircraft along the desired flightpath. Operating minimums establish minimum safe heights for instrument flight and the minimum visibility/RVV/RVR necessary for the safe completion of the approach and landing operation being conducted by external visual reference. As external visual information decreases due to reduced seeing-conditions, there must be an increase in the quality and quantity of instrument information and an increase in the proficiency of the flightcrew to maintain the desired level of safety (see section 2).

B. *Generic Operating Minimum Relationships.* Operating minimums (MDA/DH and VIS/RVV/RVR) for CAT I operations are usually determined by considering the tasks a pilot must perform after reaching the decision point (DH or MDA/MAP) to complete the landing. As a general rule, the minimum required seeing-condition (VIS/RVV/RVR) is higher if the pilot has to establish visual reference at a higher altitude because of obstacles or limitations in the ground-based or space-based electronic guidance system. In addition, operating minimums are higher if the pilot has to establish better seeing-conditions due to the difficulty of the required tasks for the safe completion of the landing (for example, circling maneuver). Nonprecision approaches usually do not provide an electronic glidepath and the guidance provided is less precise than when precision approach equipment is used. As a result, larger maneuvers are generally required to visually align the aircraft with the runway and to establish the aircraft on a proper visual glidepath so as to touchdown within the touchdown zone. These larger maneuvers not only increase the level of difficulty in completing the landing but also must begin farther from the landing threshold for successful landing completion. Therefore, nonprecision approaches usually require better seeing-conditions than precision approaches. Precision approaches usually permit the pilot to maneuver the aircraft by reference to instruments to a position more closely aligned with the runway and the proper glidepath. Hence, lower operating minimums may be used, because smaller maneuvers are required to touchdown within the touchdown zone. The generic factors which must be considered in establishing operating minimums are discussed in more detail in sections 2 and 3 of this chapter.

537. FUNDAMENTAL OPERATING PRINCIPLES. CAT I operating minimums are established on two fundamental principles. The first principle is that the flightcrew may have acquired only the minimum aeronautical knowledge, experience, skill, qualifications and training required by Parts 61 and 91 for CAT I operations. The second principle is that only the minimum airborne and ground-based or space-based equipment required for CAT I operations by the aircraft certification rules and Parts 91 and 97 will be available. The assumptions and criteria used in aircraft certification and public instrument approach procedure design must be based on these principles. The fundamental objective which must be met during aircraft certification and instrument approach procedure design is to ensure that flightcrews and aircraft that meet only the minimum requirements of Parts 61 and 91 can safely conduct operations using CAT I minimums. Any special equipment or procedures necessary to achieve this objective must be specified on the airworthiness certification basis of the aircraft (or supplemental type certificate) and/or the FAA-approved Aircraft Flight Manual. Any requirement for special training, knowledge or skills is not an acceptable means of meeting this fundamental objective because there are no regulatory provisions in Part 61 or Part 91 which can be used to enforce such requirements. Aircraft which cannot be safely operated with CAT I operating minimums using flightcrews that meet only minimum regulatory requirements shall not be certificated or otherwise approved for IFR CAT I operations. The design criteria for CAT I special instrument approach procedures used by Parts 121 and 135 certificate holders, can include special credit for the use of: special airborne or ground-based equipment, special operating procedures, and special training.

539. CAT I OPERATING MINIMUMS FOR PUBLIC INSTRUMENT APPROACHES. The criteria for operating minimums associated with public instrument approaches are established in Part 97 (U.S. TERPS) for each of the various types of approaches (such as NBD, VOR, LOC, ILS, MLS). Standard operating minimums have also been established for each of the various NAVAID's and runway lighting system combinations currently in use. Reductions in operating minimums below the basic values established for each NAVAID are based primarily on the use of approach and runway lighting systems. These lighting systems are necessary to increase the conspicuity of the landing surface, which in turn, enhances the pilot's ability to use external visual references to control and maneuver the aircraft in reduced seeing-conditions.

A. *Lighting System Credits.* All straight-in precision operating minimums below 3/4 statute mile VIS or RVR

4000 (3/4 statute mile VIS or RVR 3500 for helicopters) are based on the use of ground-based visual aids to enhance seeing-conditions during the final stages of approach and landing operations (deceleration for helicopters). These reductions are known as lighting system credits and cannot be used to reduce operating minimums for circling maneuvers due to the large area required for safe maneuvering (turn radius) at the various speeds used. Therefore, operating minimum reductions based on lighting credits can only be authorized for instrument approaches to runways which provide a straight-in landing capability. The standard minimum IFR altitudes cannot be reduced due to obstacle limitations and/or NAVAID signal limitations. As such, reductions in operating minimums below the basic values established for each NAVAID are expressed only as reductions in the visibility/RVV/RVR required to safely conduct the approach. The minimums for the various NAVAID's and lighting system combinations are specified in U.S. TERPS and in paragraph C53 and H-103 of the operations specifications.

B. Nonprecision Straight-In Minimums. The lowest permissible minimums for Categories A, B, and C aircraft during the conduct of straight-in nonprecision instrument approach procedures are HAT 250 and 1/2 statute mile VIS or RVR 2400. The lowest permissible minimums for Category D airplanes conducting straight-in nonprecision instrument approach procedures are HAT 250 and 1 statute mile VIS or RVR 5000. The lowest permissible minimums for helicopters operated at 90 knots or less are HAT 250 and 1/4 statute mile VIS or RVR 1600. These minimums for helicopters operated at more than 90 knots are HAT 250 and 1/2 statute mile VIS or RVR 2400. These minimums are the lowest authorized for nonprecision approaches that are restricted to runways which are equipped with MALSR, SSALR, ALSF-1, or ALSF-2 approach lighting systems.

C. Precision Straight-In Minimums. The lowest permissible minimums for all airplanes conducting straight-in precision instrument approach procedures are HAT 200 and RVR 1800. The lowest permissible minimums for helicopters operating at 90 knots or less is HAT 200 and 3/4 statute mile VIS or RVR 3500. These minimums for helicopters operated at more than 90 knots are HAT 200 and 3/4 statute miles VIS or RVR 4000. These basic minimums are the lowest authorized for precision approaches and are restricted to runways which are equipped with a lighting system consisting of touchdown zone and centerline lights and MALSR, SSALR, and ALSF-1 or ALSF-2 approach lighting systems.

541. BASIC AIR CARRIER OPERATING MINIMUMS. Although Part 97 establishes standard minimums for the various NAVAID's and lighting system combinations, these standard minimums cannot be automatically used by Parts 121 and 135 certificate holders. Two classes of operating minimums are established for Parts 121 and 135 operators. These classes of operating minimums are "basic air carrier minimums" and "standard minimums." For the purposes of this handbook, the basic air carrier minimums include high-minimum PIC requirements and basic turbojet requirements. These basic air carrier minimums are usually higher than the standard minimums prescribed by Part 97 for the various NAVAID's and lighting system combinations. The basic air carrier minimums must be used by all Parts 121 and 135 operators until the requirements for special airborne equipment, pilot qualification, pilot training, and/or experience requirements for standard operating minimums are met. The POI may then authorize the certificate holder to use the standard operating minimums. "Standard operating minimums," as used in this handbook, are the set of minimums that have been called "lower than standard minimums" in AC 120-29 and in previous versions of the operations specifications.

A. High Minimum Pilot-in-Command. The degraded seeing-conditions and increased difficulty in piloting tasks encountered during CAT I approach and landing operations make it necessary for PIC's to acquire a certain amount of flight experience before operating to the lowest authorized CAT I minimums. The objective of this flight experience requirement is to ensure that the pilot is fully aware of the aircraft's equipment capabilities and limitations, the available external visual cues, and the aircraft's handling characteristics.

(1) Increased Operating Minimums. The flight experience necessary to meet this objective is specified in FAR 121.652 or FAR 135.225(d), as applicable. High minimum PIC requirements for Part 135 operations are applicable only to turbine-powered airplanes (turbojet or turbopropeller). These rules require those PIC's who do not meet these experience requirements (high minimum PIC's) to increase the published MDA/DH by 100 feet and the published VIS/RVV by 1/2 statute mile or the RVR equivalent. The RVR which must be used when an RVR is published and available is the applicable high-minimum-PIC-RVR value specified in paragraph C54 of the operations specifications. The increased operating minimums for high-minimum PIC's always result in operating minimums that are higher than standard minimums. For example, if the minimums published for an ILS approach to a certain runway are HAT 200/RVR 1800, the operating minimums which must be used by a

high-minimum PIC for an approach to that runway must not be lower than HAT 300 and RVR 4500 (HAT 200 + 100 feet and the high-minimum PIC equivalent of RVR 1800, which is RVR 4500, as specified in paragraph C54 of the operations specifications). If the minimums published for a precision approach were HAT 200 and a VIS of 3/4 statute mile, the high-minimum PIC would have to use a HAT of 300 and a VIS of 1-1/4 statute miles. Therefore, when dispatching or releasing a flight, the increased operating minimums for high-minimum PIC's and the reported and/or forecasted weather conditions at the destination airport must be considered.

(2) *Specific Operating Rule Provisions.* FAR 121.652 and FAR 135.225(d) are similar, however, significant differences exist in the specific details of these rules.

(a) *FAR 121.652.* This rule applies to all airplanes operated under Part 121. It raises high-minimum PIC operating minimums by HAT 100 feet and visibility by 1/2 statute mile or by the RVR equivalent. The high-minimum, PIC-RVR equivalents are specified in the operations specifications. The rule specifies that the MDA or DH and visibility minimum required for a high-minimum PIC does not have to be raised above the conditions required to designate the airport as an alternate airport. The new method for determining alternate minimums, however, is to add a buffer to the HAT/HAA and visibility or RVR authorized for landing. This method negates the provision of this rule since alternate minimums will always be higher than the high-minimum PIC's landing minimums. The landing minimums for high-minimum PIC's at destination airports are always determined by adding 100 feet to the HAT/HAA and 1/2 statute mile to the visibility authorized for landing or by using the high-minimum, PIC-RVR equivalents in paragraph C54 when RVR is available. This rule establishes HAT 300 feet and 1 statute mile (or the RVR equivalent as low as RVR 4500) as the lowest straight-in precision approach operating minimums for high-minimum PIC's. This rule also establishes HAT 300 and 1 statute mile (or the RVR equivalent as low as RVR 5000) as the lowest straight-in nonprecision approach operating minimum for high-minimum PIC's. This rule also permits the 100-hour flight experience requirement to be reduced by up to 50% by substituting one landing for one required hour of flight experience, provided the PIC has at least 100 hours PIC time in another type airplane in Part 121 operations.

(b) *FAR 135.225(d).* This rule applies only to turbine-powered (turbojet and turbopropeller) airplanes.

It raises operating minimums for high-minimum PIC's by HAT 100 feet and visibility by 1/2 statute mile. When RVR minimums are published and RVR reports are available, the high-minimum, PIC-RVR equivalent values specified in the operations specifications must be used. The operating minimums for Part 135 high-minimum PIC's are the same as those for Part 121 PIC's (see paragraph 543 A(2)(a)). The rule also specifies that the MDA or DH and visibility minimums required for high-minimum PIC's does not have to be raised above the ceiling and visibility requirements for the airport to be designated as an alternate airport. The new method for determining alternate minimums, however, negates this provision of this rule (see discussion in paragraph 543 A(2)(a)). This rule does not permit a reduction to the 100-hour flight experience requirement.

B. Basic Turbojet Minimum. A basic turbojet VIS/RVR operating minimum has been established for all turbojet airplanes operated under Parts 121 and 135. The basic turbojet minimum for straight-in nonprecision and precision approaches is 3/4 statute mile visibility or RVR 4000. Any minimum less than the basic turbojet minimum is not authorized in turbojet aircraft until special requirements are met. When the airplane equipment, the runway lighting/marking systems, and the pilots are in compliance and qualified in accordance with AC 120-29 (as amended) and this handbook, the lowest minimums which have been established for various approved approach and runway lighting/marking configurations may be authorized. The turbojet minimums for each of the approved approach and runway lighting/marking configurations are specified in paragraphs C53 and C54 of the operations specifications.

543. STANDARD AIR CARRIER OPERATING MINIMUMS. Standard operating minimums are established in Part 97 for the various combinations of NAVAID's and visual systems used for AWTa operations. Air carriers can be authorized to use standard circling minimums in accordance with paragraph C53 and/or H103 of the operations specifications (see paragraph 543A). An air carrier can also be authorized to use the standard minimums for straight-in precision and nonprecision approaches when all of the high-minimum PIC and, if applicable, basic turbojet requirements have been met. These requirements include special airborne equipment, and special pilot training, qualification, and/or special operating experience (see paragraph 541 and AC 120-29).

A. Standard Minimums for Circling Maneuvers. The standard minimums for circling maneuvers are based on the highest speed used during a particular circling maneuver. The highest speed to be flown (speed category)

during the maneuver must be used to determine the appropriate minimums. This speed must be used to determine the appropriate minimums, to ensure that the aircraft will remain within the designated circling maneuver area, thereby assuring obstacle clearance. For Parts 121 and 135 operations, the standard operating minimums for circling maneuvers for all aircraft are specified in paragraphs C53 and H103 of the operations specifications. The operating minimums specified in terms of HAA and visibility as follows:

| <u>Speed Category</u> | <u>HAA</u> | <u>Visibility (SM)</u> |
|-----------------------|------------|------------------------|
| Less than 91 kts | 350 | 1 |
| 91 to 120 kts | 450 | 1 |
| 121 to 140 kts | 450 | 1 |
| 141 to 165 kts | 550 | 2 |
| Above 165 kts | 1000 | 3 |

B. Reciprocating/Turbopropeller Airplanes and All Helicopters. The standard CAT I minimums can be used for reciprocating or turbopropeller airplanes and all helicopters at those runways where the required visual aids are serviceable and the instrument approach procedures specify minimums equal to or greater than the standard operating minimums specified in the operations specifications. If the flightcrew meets the high-minimum PIC flight experience, additional flightcrew training and/or airborne equipment are not usually required as a prerequisite for being authorized to use the standard minimums.

C. Turbojet, Turbofan, and Propfan Airplanes. The degraded seeing-conditions encountered when operating to the standard CAT I minimums significantly increases the difficulty of the piloting tasks associated with certain airplanes. In particular, when turbojet, turbofan, or propfan airplanes are operated using the standard CAT I minimums, the minimum flightcrew training and airborne and ground-based or space-based equipment do not assure under certain conditions, that operations can be conducted safely. Therefore, the standard CAT I operating minimums must not be authorized for operations with turbojet, turbofan or propfan airplanes until the flightcrew and the airplane airborne equipment are specifically qualified in accordance with this handbook and AC 120-29 (as amended) for those minimums. The conditions necessary for safe operations using the standard minimums with these airplanes include the following:

- Special airborne equipment
- Special ground-based electronic equipment

- Special ground-based visual aids
- Additional runway field length
- Special training and qualification
- Special operating procedures
- Special maintenance requirements

545. AUTHORIZED CAT I INSTRUMENT APPROACH PROCEDURES. All operations conducted under IFR in CAT I weather conditions (except contact approaches) must be conducted in accordance with an approved instrument approach procedure. Paragraphs C51, C52, H101 and H102 of the operations specifications specify the instrument approach procedures which can be authorized for use in CAT I operations. If the flightcrew is properly trained and the aircraft is properly equipped and maintained, a U.S. operator is authorized to conduct CAT I operations at airports and runways where the instrument approach procedure is prescribed or developed in accordance with paragraphs C51 and H101 of the operations specifications. Paragraphs C53, C54, H103 and H104 of the operations specifications establish the lowest landing minimums which can be authorized, under any circumstances, for CAT I operations by U.S. air carriers. FAA inspectors shall not authorize certificate holders to use landing minimums lower than these values. Additionally, inspectors shall not authorize the use of instrument approach procedures and/or landing minimums for CAT I operations at foreign airports unless the provisions of FAA Order 8260.31B and the operations specifications are satisfactorily met. The operations specifications establish the generic requirements and criteria for operations at these airports. FAA Order 8260.31B establishes the detailed criteria, procedures, and policy for authorizing, restricting, and/or denying the use of foreign terminal instrument approach procedures by U.S. air carriers. Paragraphs 453 through 459 of this chapter provide a more detailed discussion on the instrument approach procedures that can be used by U.S. air carriers and the proper methods for authorizing their use.

547. BASIC IFR AND STANDARD CAT I OPERATING PRACTICES. As CAT I AWTA operations evolved, certain operating practices and procedures have been shown to be effective in providing enhanced situational awareness in the cockpit during IFR flight. These practices and procedures provide an effective means for ensuring that flight crewmembers maintain a common understanding of the aircraft's flight progress, including the actions and sequence of actions that must be

performed for continued safe flight and landing. These standard operating practices and procedures apply to the conduct of instrument approach procedures, altitude awareness, ascent and descent rate management, and the use of checklists. When properly and consistently applied, the standard operating practices discussed in this paragraph have been shown to significantly reduce the potential for misunderstandings and accidents or serious incidents. These practices enhance flight safety, and are good examples of safe operating practices and procedures. It is national policy and direction and guidance that each operator must develop standard operating procedures for CAT I operations, and that these practices must be included in operator manuals, training programs, and operating procedures. When evaluating an operator's practices and procedures, an inspector should use the practices discussed in this paragraph as the national norm. The inspector should ensure that any operating procedures used by an operator are equivalent to these norms. All basic IFR and CAT I operations conducted by Parts 121 and 135 operators should be conducted in accordance with these standard operating practices and procedures (or their approved equivalents).

A. Basic IFR Operating Practices. The operating practices and procedures for basic IFR operations are related to altitude awareness, ascent and descent rate management, and the use of checklists. The basic purpose of these practices is to provide a means for the flightcrew to continuously function as a coordinated team to ensure the safe completion of the planned flight. This is accomplished by establishing crew duties and responsibilities that clearly define each flight crewmember's role during a particular operation. Under normal circumstances, at least one pilot should maintain a full-time instrument reference to monitor flight progress.

(1) *Aircraft Control Responsibilities.* Operational practices and procedures must be established to ensure that there is never any doubt about who is the pilot-flying (PF) and who is the pilot-not-flying (PNF) at any particular point in the flight. The PNF should monitor and assist the PF by making call-outs for each significant transition point, event, or failure condition, and by performing any actions requested by the PF or required in the established operating procedures. If the primary responsibility for controlling the aircraft is transferred from one pilot to the other during any portion of the flight, the procedures used should clearly describe how this transfer of responsibility is announced to the other flight crewmembers.

(2) *Cockpit Checklist and Procedures.*

Checklists and cockpit check procedures must be established to ensure that all actions required for a particular flight are properly performed. These checklists and the associated operating practices and procedures should be designed to minimize the attention required inside the cockpit without lessening the effectiveness of cockpit check procedures. The checklists and cockpit procedures used should incorporate the following general principles:

(a) The checklist procedures should include only those items which are essential for safe operation.

(b) The operating procedures should be arranged so that one pilot can be looking outside with a minimum of interruption or distraction from visual scanning tasks while the other pilot is performing tasks inside the cockpit.

(c) The cockpit procedures should be arranged to minimize the cockpit checking which must be done at critical times such as during climb or descent and during departures or arrivals in congested areas.

(d) The operating procedures and the management of the flight deck should be arranged to enhance the detection of potential mid-air collision threats during those phases of flight where threats are likely to occur, such as departure, climb, descent, and arrival.

(e) The arrangement of checklist items and the printing (format presentation) used on the checklists should not involve prolonged concentration for the pilots' eyes to adjust to changes from distant to near vision.

(3) *Standard Call-outs.* Standard call-outs for basic IFR operations should be established to ensure that the flightcrew functions as a well-coordinated team and maintains the situational awareness necessary for safe operation of the aircraft. The PNF should be assigned the responsibility for monitoring the flight progress and for providing call-outs to the PF for each significant transition point, event, or failure condition. The following additional PNF call-outs should also be used as standard operating practices for all basic IFR operations:

(a) During climb to assigned altitude, the PNF should provide a call-out when passing through the transition altitude (as a reminder to reset the altimeters) and when approaching one thousand feet below assigned altitude.

(b) During cruise, the PNF should provide a call-out when the aircraft altitude deviates by 200 feet or

more from the assigned altitude.

(c) During descent from en route flight altitude to initial approach altitude, the PNF should provide a call-out when approaching 1000 feet above the assigned altitude, an altitude where a speed reduction is required (e.g. 10,000 feet in the U.S.), 1000 feet above the initial approach altitude (above field elevation for approaches in VFR conditions), and when passing the transition level.

B. Standard CAT I Operating Practices. The standard operating practices and procedures for CAT I AWTA operations are related to proper approach and missed approach preparation, altitude awareness, terrain and obstacle awareness, airspeed control, propulsion system control, flightpath control, descent rate management, the use and limitations of NAVAID's and of visual cues, and the use of checklists. The basic purpose of these standard procedures and practices is to provide a means for the flightcrew to continuously function as a well-coordinated team for ensuring the safe completion of the instrument approach and the subsequent landing or missed approach. The following standard operating practices and procedures, which are in addition to the standards required for basic IFR operations, should be established for CAT I operations:

(1) *Approach and Missed Approach Preparation.* Before executing any instrument approach procedure, the flightcrew should review the approach procedure before the final approach fix. As a minimum, this review should include the field elevation, the minimum safe altitude (MSA), the type of approach, the final approach course, the minimum descent altitude (MDA) or decision height (DH), the controlling minimums, and the missed approach procedure.

(2) *Checklist Completion.* For all straight-in approaches conducted in IFR conditions, the final checklist ("before landing checklist") must be completed before the aircraft passes 1000 feet above the elevation of the touchdown zone. For circling approaches conducted in IFR conditions, all checklist items except the final landing flap configuration must be completed before the aircraft passes 1000 feet above the airport elevation, and the checklist must be completed before passing the MDA or 500 feet, whichever is lower. For approaches conducted in VFR conditions, all checklist items must be completed before passing 500 above the touchdown zone elevation.

(3) *Stabilized Approach Concept.* All

approaches conducted with turbojet, turbofan, and propfan aircraft must be conducted in accordance with the stabilized approach concept (see paragraph 511). The use of the stabilized approach concept by all other aircraft is strongly recommended because of its potential safety benefits.

(4) *Generic CAT I Call-outs.* Generic call-outs for CAT I operations should be established to ensure that the flightcrew functions as a well-coordinated team and maintains the situational awareness necessary for the safe operation of the aircraft. As a minimum, the following generic PNF call-outs, in addition to the call-outs specified for basic IFR operations, should be used during CAT I operations:

(a) *Beginning the Final Approach Segment.* Just before beginning the final approach segment, a call-out should be provided to cross-check the altimeter settings and instrument indications and to confirm the status of warning flags for the flight and navigation instruments and other critical systems. During flight director or autocoupled approaches, proper flight director and/or autopilot mode engagement and lateral and/or vertical navigational signal tracking should be confirmed.

(b) *Rate of Descent Call-outs.* If the flight altitude is less than 2000 feet above ground level (AGL), the PNF should provide a call-out when the rate of descent exceeds 2000 feet per minute. Additionally, a call-out should be provided when the rate of descent exceeds 1000 FPM if the flight altitude is less than 1000 feet AGL.

(c) *Altitude Call-outs.* The PNF should provide a call-out at 1000 feet above the landing elevation to confirm aircraft configuration and to cross-check the flight and navigation instruments. For approaches conducted in IFR conditions, the PNF should also provide a call-out at 100 feet above the MDA or DH (as applicable) followed by a call-out upon arriving at the MDA or DH. Unless the available external visual references meet the requirements of FAR 91.116 for descent below MDA or DH, the PNF should also provide call-outs if the aircraft descends below the authorized MDA or DH. If radio altimeters are installed and operational, call-outs should be provided at 10 foot intervals between 50 feet and touchdown.

(d) *Airspeed Call-out.* The PNF should provide a call-out at any point in the approach when the airspeed is below the planned speed for the existing aircraft configuration. If the aircraft has entered the final approach segment, a call-out should also be provided when the airspeed exceeds 10 knots above the planned final approach

speed.

(e) *Visual Cue Call-out.* Except for CAT I operations which are conducted in accordance with the standard AWTA operating procedure discussed in paragraph 549, the PNF should provide a call-out when the visual cues required to continue the approach by visual reference are acquired, such as "approach lights" or "runway". This call-out should not be made unless the available visual cues meet the requirements of FAR 91.116 for descent below the MDA or DH.

(f) *Destablized Approach Call-out.* The PNF should provide a call-out if the approach becomes destablized. The approach is destablized if the criteria for a "stabilized approach" are not met and maintained (see paragraph 511).

(g) *Approach Profile Call-out.* The PNF should provide a call-out if the aircraft deviates from the proper approach profile during any portion of an instrument approach. Furthermore, the PNF should provide a call-out if the aircraft has entered the final approach segment of an ILS/MLS approach and the localizer (azimuth) displacement exceeds 1/3 dot and/or the glideslope (elevation) displacement is greater than one dot. For localizer (azimuth)-based approaches, a call-out should be made if the displacement exceeds 1/3 dot during the final approach segment. For VOR-based approaches, a call-out should be made if the displacement exceeds 2 degrees during the final approach segment. For NDB-based approaches, a call-out should be made if the displacement exceeds 5 degrees during this segment.

549. THE STANDARD AWTA OPERATING PROCEDURE.

A. *General.* Throughout the evolution of AWTA operations, numerous research programs have investigated various concepts in an attempt to optimize crew duties and responsibilities and to develop the ideal operational practices and procedures for operations in the restricted seeing-conditions associated with these operations. Although the ideal operational procedure has not yet been found, one method of specifying crew duties and responsibilities has been demonstrated to be especially effective, and is beginning to be widely used. For the purpose of this handbook, this particular method of conducting AWTA operations is called the "standard AWTA operating procedure." The standard AWTA operating approach procedure is based on the use of autocoupled approaches to minimize flightcrew workload and to increase the precision of flightpath control. This

concept was also designed to distribute the workload between the two pilots during the critical final approach segment and to provide a smoother transition from instrument to visual flight for completion of the landing. Another advantage to this concept is that the approach will default to a missed approach if any confusion, hesitation, or disorientation occurs at the critical decision point (DH or MDA/MAP). It is national direction and guidance that all operators (except those operators using heads-up display equipment) should be encouraged to use the standard AWTA operating procedure for instrument approaches when the weather conditions are equal to or less than RVR 5000 for nonprecision approaches and RVR 4000 for precision approaches.

B. *The Standard AWTA Operating Procedure Concept.* The standard AWTA operating procedure specifies a separation of the crew duties and responsibilities for the pilot who manipulates the controls during the landing (the landing-pilot) and the pilot who is not manipulating the controls during the landing (the non-landing pilot).

C. *Responsibilities of The Non-Landing Pilot.* The non-landing pilot maintains a full-time instrument reference throughout the approach and landing or missed approach. The non-landing pilot also serves as the master monitor of the flight instruments, navigation instruments, the autoflight system, and other critical aircraft systems.

(1) The non-landing pilot is assigned the responsibility for hands-on-control of the aircraft from the beginning of the final approach segment until arrival at DH. At MDA or DH, the non-landing pilot is responsible for making the go-around decision if the landing-pilot does not immediately respond to the "decide" challenge (call-out), at DH or MDA/MAP. If, before passing MDA or DH, the landing-pilot makes the decision to continue the approach and assumes hands-on-control of the aircraft, the non-landing pilot relinquishes aircraft control and continues to serve as the master monitor throughout the subsequent landing or, if required, a missed approach.

(2) The non-landing pilot is responsible for hands-on control of the aircraft from the beginning of the final approach segment until arrival at MDA/MAP or DH. Upon arrival at this point, the non-landing pilot is also responsible for immediately executing a go-around and maintaining hands-on control throughout the missed approach segment, unless one of the following three events occurs.

(3) The landing-pilot determines that the aircraft's flightpath is acceptable and the external visual cues are

adequate for continuing the approach by visual references. In this case, the landing-pilot assumes hands-on control of the aircraft by a call-out such as, "I've got it" and simultaneously pushes the non-landing pilot's hand from the throttles. This double confirmation (verbal and tactile) is essential for ensuring an orderly transfer of control during this critical flight phase.

(4) The landing-pilot determines that either the flightpath or the external cues are unacceptable and executes a missed approach by assuming hands-on control of the aircraft. The transfer of control should be accomplished in the same manner as previously described.

(5) The landing-pilot detects or strongly suspects an unsafe condition and executes a missed approach by assuming hands-on control of the aircraft in the same manner as previously described.

D. Responsibilities of the Landing-Pilot. The landing-pilot serves as the secondary monitor of the flight instruments and aircraft systems. The landing-pilot has the primary responsibility for evaluating the overall performance of the approach, determining the adequacy of the external visual cues, and for making the decision at MDA/MAP or DH to either continue the approach and landing or to go-around. During the approach, the landing-pilot incorporates external visual cues with the instrument references until reaching 100 feet above MDA/MAP or DH. At 100 feet above MDA or DH, the landing-pilot transitions to head-up scanning to evaluate the adequacy of external visual cues and to begin formulating the decision which must be made before passing MDA/MAP or DH.

(1) If, before passing MDA/MAP or DH, the landing-pilot decides that the aircraft's flightpath is acceptable and the external visual cues are adequate for continuing the approach visually, the landing-pilot assumes hands-on control of the aircraft by making a call-out such as "I've got it" and simultaneously pushes the non-landing pilot's hand from the throttles. The landing-pilot is responsible for manipulating the controls during the landing or throughout the missed approach if a go-around is necessary below MDA or DH.

(2) If the landing-pilot decides that a go-around is necessary before assuming hands-on control of the aircraft, the landing-pilot should give the call-out "go-around," and simultaneously push the throttles toward go-around power. The non-landing pilot will then execute the missed approach. In unusual circumstances, such as when the non-landing pilot hesitates to follow the go-

around command, the landing-pilot can execute the missed approach by giving another call-out such as, "I've got it; going around" while simultaneously pushing the non-landing pilot's hand from the throttles and assuming hands-on-control of the aircraft.

(3) The landing-pilot must manipulate the controls when operating below the MDA or DH. Therefore, the landing-pilot must execute the missed approach and manipulate the controls throughout the missed approach segment if a go-around is necessary below MDA or DH.

E. The Decision At MDA/MAP or DH. The landing-pilot is responsible for making the landing or go-around decision at MDA/MAP or DH. The non-landing pilot is responsible for making the go-around decision at MDA/MAP or DH if the landing-pilot does not immediately respond to the "decide" challenge (call-out) at MDA/MAP or DH.

551. EVALUATION AND APPROVAL OF CAT I OPERATIONS. The process for evaluating and approving CAT I AWTA operations generally follows the process for approval or acceptance described in volume I, chapter 5, section 6. The discussion in the following paragraphs provides specific criteria and direction related to the evaluation and approval of CAT I operations.

A. Straight-In Approach and Landing Operations. Before an operation can be authorized for the use of CAT I nonprecision and precision straight-in instrument approach procedures, inspectors must evaluate the proposed operation and determine that the operator is competent to safely conduct those procedures. Inspectors must ensure that the operator's program specifies the conditions necessary for the safe conduct of proposed operations. The operator's program should incorporate systems, methods, and procedures that meet the following criteria:

- Program restricts operations to aircraft which are properly equipped and airworthy for the CAT I straight-in approaches to be conducted
- Complies with regulatory requirements specified for the operations
- Meets the requirements of Part B, C and H of the operations specifications and the criteria of this handbook
- Provides for accepted, safe operating practices, such as altitude awareness and sterile cockpit

procedures

- Meets the criteria of AC 120-29 (as amended), when applicable
- Requires the use of the stabilized approaches when turbojet, turbofan or propfan airplanes are used
- Program restricts operations to pilots who are properly trained, experienced, qualified, and proficient for the particular operation being conducted (including use of basic air carrier minimums as well as standard minimums)
- Program restricts operations to airports and runways which meet the requirements applicable to straight-in instrument approaches

B. Approaches Requiring Circling Maneuvers. When an operator is authorized to conduct CAT I instrument approaches, the operations specifications automatically authorize the conduct of circling maneuvers in VFR weather conditions (1000 feet ceiling and 3 statute miles visibility). A circling maneuver conducted under this authorization may be performed at the published HAA appropriate for the highest speed in the circling maneuver. However, before circling maneuvers can be conducted with ceilings below 1000 feet and/or visibilities below 3 statute miles, the operator's holders approved training program must provide for training in the circling maneuver. If an operator intends to conduct circling maneuvers with ceilings below 1000 feet and/or visibilities below 3 statute miles, inspectors must evaluate the operator's training program and determine that it provides adequate instruction and checking of pilots on the circling maneuver. When an operator does not provide training on circling maneuvers, the operator's operating policies and procedures must prohibit circling maneuvers when ceilings and/or visibilities are below 1000 feet and 3 statute miles. Inspectors must also ensure that the certificate holder's overall program specifies the necessary conditions (over and above those required for straight-in approaches) to safely conduct circling maneuvers. The operator's program should incorporate methods, procedures, and training that meet the following criteria:

- Meets the circling maneuver criteria in the operations specifications

- Requires the circling maneuver to be performed in visual flight conditions
- Provides for safe missed approaches throughout the circling maneuver
- Requires the use of circling maneuver minimums appropriate to the highest speed used in a particular circling maneuver
- Program restricts operations to those airports and runways where circling maneuvers can be safely completed
- Program restricts circling maneuvers with ceilings below 1000 feet and/or visibilities below 3 statute miles to those pilots who are properly trained and checked for the circling maneuver in those weather conditions

C. Visual Approaches. An operator is authorized to conduct visual approaches, provided the conditions specified in the operations specifications are met. For operations at foreign airports, it is important to understand that the term "visual approach" can have a different meaning than the U.S. definition of visual approach. The ICAO definition of a visual approach includes a "contact approach" and does not include requirements to have VFR weather conditions, to be under the control of an ATC facility, or to be within 35 nautical miles of the destination airport. In both domestic and foreign operations, the operator must comply with the conditions specified in the operations specifications when conducting visual approaches. When authorized to operate in foreign countries, the operator's policies, procedures, and approved training program must ensure that the requirements for visual approaches in foreign countries are adequately addressed.

D. Contact Approaches. Contact approaches, in accordance with the operations specifications, are authorized only when the operator's approved training program provides training on contact approaches. A contact approach is an authorization to deviate from the prescribed instrument approach procedure (under IFR weather conditions) and to proceed visually to the runway of intended landing. Although the flight is still on an IFR flight plan, and ATC maintains responsibility for the separation of aircraft and wake vortex requirements, the flightcrew does assume total responsibility for navigation and terrain and obstacle avoidance. If an operator does not provide training on contact approaches, its policies and procedures must prohibit pilots from requesting, accepting, or conducting contact approaches. When an operator does

provide training on contact approaches, the operator's operating policies and procedures must ensure that the conditions and requirements for accepting and conducting these approaches are clearly stated.

E. Special Instrument Approach Operations.

Operators can be authorized to conduct special CAT I approach and landing operations. When authorizing these types of special approaches, inspectors must be assured that the aircraft are properly certificated, equipped, and maintained. In addition, approved training programs and operating policies and procedures must ensure that these operations can be safely conducted. The following discussion addresses the current types of special CAT I operations which are well developed and understood. If the operator requests approval of other types of special CAT I operations, the request should be forwarded through the Regional Flight Standards Division to AFS-400 for national direction and guidance related to the approval and conduct of the proposed special operation.

(1) Area Navigation (RNAV) Approaches.

Operators can be authorized to conduct CAT I Area Navigation (RNAV) approach operations in accordance with paragraph C63 and H112 of the operations specifications. The aircraft must be properly certificated, equipped, and maintained for RNAV approaches in accordance with AC 90-45A (or equivalent criteria). In addition the operator's approved training program, operating policies, and procedures must ensure that these operations can be safely conducted. When authorized, the RNAV approaches established in Part 97 may be conducted, provided the equipment requirements and procedures specified by the Part 97 procedure have been complied with. The operator may also be authorized to conduct other RNAV instrument approach procedures (not listed in Part 97) by listing the procedures in paragraph C64 and H113 of the operations specifications.

(2) Airborne Radar and Offshore Approaches. An operator can be authorized to conduct CAT I Airborne Radar Approaches (ARA's) and/or Offshore Standard Approach Procedures (OSAP's). The operator's approved training program, equipment installations, and operational policies and procedures must meet the criteria specified in AC 90-80 (as amended) before the operator can be authorized to conduct ARA's and OSAP's. ARA's and OSAP's are authorized by listing the procedure in paragraph H113 of the operations specifications.

(3) Point-In-Space Approaches. In certain cases, the instrument portions of an instrument approach

procedure may deliver the aircraft to a predetermined "point-in-space" instead of to an airport or runway. These types of approaches are intended to provide an IFR descent to a point where sufficient visual reference is available for the pilot to navigate visually for several miles to the airport of intended landing. If the required seeing-conditions are not established before passing this point-in-space, a missed approach can be safely executed. These procedures are useful in the following two situations:

(a) Terrain, obstacles, conflicting air traffic, and/or NAVAID's limitations can occasionally prevent the establishment of a standard IFR approach procedure to a particular airport or runway. In certain cases where this occurs, an instrument approach can be established to provide an IFR descent to a point a few miles from the airport. Upon arrival at this point-in-space, the flight can then proceed under VFR conditions using pilotage and/or station-referenced VFR Class I navigation to a landing at that airport. These procedures are, in effect, an instrument approach procedure followed by an extended visual segment and are commonly referred to as "fly visuals." In normal circumstances, an authorization to conduct nonprecision approaches automatically authorizes the operator to conduct fly visuals in accordance with Part 97, and the operations specifications.

(b) Helicopter en route descent areas (HEDA's) permit a single instrument procedure to serve many offshore heliports, and significantly reduce the burden of developing numerous standard instrument approach procedures for this dynamic situation. This is particularly useful in offshore operations where heliports frequently exist for short periods of time and the location of the heliport is frequently moved because of operational needs. Once the criteria specified in AC 90-80 (as amended) have been met, HEDA's are authorized by being listed in paragraph H104 of the operations specifications.

553. CAT I AIRPORT, RUNWAY, AND GROUND-BASED EQUIPMENT REQUIREMENTS. The suitability of the airports and runways for the type of aircraft used and type of operation being conducted is an integral part of evaluating and approving CAT I AWTA operations. The basic requirements for instrument flight operations and the takeoff and landing performance requirements of the applicable operating rules address the majority of the criteria required for AWTA operations. However, the operational concepts and operating criteria used by the operator in the conduct of AWTA operations are other factors to be considered. Inspectors must determine that the operator fully understands the CAT I AWTA operational requirements and provides the necessary

policies, procedures, and training to meet those requirements. The operator must address the requirements for the use of various CAT I operating minimums in company manuals and training programs. When determining the adequacy of airports to support an operator's CAT I operations (including any special requirements for the use of standard air carrier minimums), inspectors must consider whether the operator's overall CAT I program accounts for the following factors:

- Suitability of runways, runway field lengths, taxiways, and other maneuvering areas on the airport
- Suitability of instrument approach procedures and NAVAID's to be used
- Adequacy of procedures for protection of the runway safety and obstacle-free areas and ILS/MLS critical areas as well as runway and taxiway incursion prevention procedures
- Required ATC facilities and services
- Required safety facilities and services (such as crash, fire, and rescue)
- Weather reporting and forecasting services
- Aeronautical information services (NOTAM, ATIS)
- Use of radio-controlled lighting, if appropriate
- Adequacy of lighting, marking and other visual aids necessary to support CAT I operations

555. CAT I OPERATIONS USING BASIC AIR CARRIER OPERATING MINIMUMS. This paragraph discusses the evaluation and approval criteria for CAT I operations which are restricted to basic operating minimums. Basic operating minimums include the high-minimum PIC minimums and the basic turbojet minimums (see paragraph 541). This includes precision and nonprecision, with or without circling maneuvers, using standard equipment to conduct instrument approach procedures based on standard ICAO approach and landing

NAVAID's (VOR, VOR/DME, NDB, ILS, MLS) or ATC radar approaches (ASR, PAR). Unless specifically stated otherwise, the criteria discussed in this paragraph are applicable to both helicopters and airplanes. The criteria and other pertinent factors discussed in this paragraph are in addition to the airport, runway, and ground-based equipment requirements discussed in the previous paragraph. RNAV and other special instrument approach operations are discussed in paragraph 551E.

A. Airborne Equipment Required for Basic CAT I Operating Minimums. When aircraft and avionics equipment are certificated by the U.S., the requirements in Parts 61, 91, 121, and/or 135, as appropriate, are taken into consideration. Therefore, aircraft and avionics combinations certificated by the U.S. for IFR flight are capable of supporting the conduct of CAT I AWTAs operations using basic air carrier operating minimums. This applies to reciprocating and turbopropeller airplanes as well as turbojet, turbofan, and propfan airplanes and all helicopters. Therefore, for operations using standard instrument approach procedures based on ICAO standard NAVAID's and basic operating minimums, the aircraft and avionics airworthiness certification basis and the operating rules define the required airborne systems and equipment. These requirements include the provisions of FAR's 91.25, 91.37, 121.305, 121.347, 121.349, 135.163 and 135.165. These requirements are "equipment rules" (that is "the aircraft must be equipped with"). As such, they are distinctly different from the requirements which must be met to actually conduct an instrument approach procedure.

(1) *Airborne Equipment Required for Departure.* The "equipment rules" are met when the required equipment is installed and serviceable at the time a flight departs. The redundancy specified in these rules is intended to provide the capability to safely continue and complete an IFR approach and landing (at either a destination or alternate airport) in the event an approach system fails or malfunctions inflight.

(2) *Airborne Equipment Required for Conducting Standard Instrument Approach Procedures.* The "equipment rules" specifically address the airborne equipment which must be installed and serviceable before departure for basic air carrier operating minimums. Therefore, additional requirements must be specified to address instances where some of the required equipment fails or malfunctions inflight. This is particularly true in situations where the "equipment rules" require redundancy for the purpose of preserving an instrument approach capability in the event

a failure occurs. The equipment rules and the operations specifications do not specify in detail the equipment required to initiate a standard instrument approach procedure. However, the operational concepts and regulatory provisions clearly intend and require certain equipment to be serviceable to safely execute a CAT I instrument approach procedure. U.S. TERPS criteria (which is incorporated into Part 97 by reference) and ICAO PANS-OPS criteria for instrument approach procedure design clearly require that specific airborne equipment must be serviceable in order to conduct the approach. FAR 91.116 and the operations specifications require the use of an approved instrument approach procedure for all instrument approach and landing operations conducted in IFR weather conditions (contact approaches are the exception). U.S. TERPS and ICAO PANS-OPS criteria identify instrument approach procedures by the airborne and ground-based or space-based equipment which must be serviceable for final approach guidance (for example VOR, VOR/DME, ILS/DME, LDA). In general, the airborne equipment required to be serviceable in order to safely execute an instrument approach procedure consists of both flight instruments and navigation equipment. As a minimum, the required flight instruments and navigation equipment must permit, under IFR weather conditions, an orderly transition from the en route environment through the initial approach fix to the DH or MDA/MAP. Thereafter, if visual reference cannot be established, the flight instruments and navigation equipment must permit the execution of a missed approach and transition back to the en route environment for a diversion to an alternate airport or for reinitiating the instrument approach, as circumstances dictate. This required equipment also includes any flight instruments and navigation equipment necessary to define the courses or flightpaths to be flown and to determine the significant geographic points defined by the procedure (such as, transition or stepdown fixes, arrival at minimums and/or MAP's). Obviously, the flight instruments and navigation equipment must provide usable information to the pilot flying the aircraft. This information must be located within that pilot's normal instrument scan pattern. Most CAT I operations do not require redundant flight instruments and navigation equipment to execute an instrument approach procedure. For example, a single serviceable VOR/ILS system, a single marker beacon system, a single DME system, and a single set of flight instruments are normally sufficient to fly an ILS/DME instrument approach procedure using basic air carrier minimums. This example assumes that the initial approach, missed approach and the route of flight to the alternate airport are based on VOR or VOR/DME. Inspectors must determine that the operator's

overall CAT I AWTAs operations program provides the policies, procedures, training, and equipment necessary for conducting the instrument approach procedures authorized by the operations specifications.

B. Operator Manuals. Before granting approval by issuing operations specifications, inspectors must evaluate the ability of the operator's overall program to provide the policy guidance, methods, and procedures necessary for ensuring the safe conduct of CAT I operations using basic air carrier operating minimums. In conducting this evaluation, inspectors must consider certain factors related to the manuals. After completing this evaluation, the inspector must make a judgment concerning whether the operator's program as described in its manuals, is able to meet the requirements of the FAR's and the operations specifications. Inspectors must also make a judgment concerning the operator's ability to provide for safe, accepted operating practices and procedures. When conducting this evaluation and making an appropriate judgment, the inspector should consider the following factors:

- Criteria and procedures for determining the suitability of runways, airport facilities, services and ground-based equipment necessary for the types of aircraft used and the CAT I operation to be conducted
- Criteria and procedures for determining the airborne equipment required to be serviceable at departure
- Criteria and procedures for determining the airborne and ground-based equipment that must be serviceable before conducting CAT I operations at the destination and alternate airports
- Criteria and procedures for determining the airworthiness status of the aircraft for the operation to be conducted
- Criteria and procedures to ensure that the MEL requirements are met for the operation being conducted
- Criteria and procedures which ensure that CAT I dispatch or flight release requirements are met
- Criteria and procedures for determining the instrument procedures and operating minimums

authorized, including the equipment, training, and qualification requirements necessary for conducting the operations

- Specific and detailed operating procedures and crew duty assignments for the types of aircraft used and the instrument approach procedures authorized (These policies and procedures must require all turbojet operations to be conducted in accordance with the "stabilized approach" concept.)
- Specific requirements and instructions concerning the operating restrictions and limitations associated with the types of aircraft and the instrument approach procedures to be used

C. The Operator's Training Program. Inspectors must evaluate training curriculums to determine that flightcrews receive both ground and flight training on the instrument approaches the operator is authorized to conduct. Because of procedural and design similarities, flight training on one type of instrument approach procedure often provides the necessary training for other types of instrument approach procedures. Inspectors observing training in progress should verify that the approved training and qualification curriculum segments ensure flightcrew competency in the conduct of authorized instrument approach procedures.

(1) Nonprecision Approaches.

(a) Ground training and flight training on nonprecision approaches are required for certificate holders authorized to conduct IFR operations.

(b) Flight training on VOR approaches satisfies flight training requirements for LOC, SDF and LDA approaches.

(c) Flight training on VOR/DME approaches satisfies flight training requirements for LOC/DME and LDA/DME approaches.

(d) Flight training on NDB approaches is required if NDB or NDB/DME approaches are authorized. However, flight training on VOR/DME satisfies the DME flight training requirements for NDB/DME approaches.

(e) Flight training on LOC back course approaches is required if the LOC back course approach

is authorized.

(f) Ground training is sufficient for ASR approaches

(2) Precision Approaches

(a) Ground and flight training on precision approaches is required for operators authorized to conduct precision approaches.

(b) Flight training is required on ILS approaches. Flight training on the use of NDB and/or DME in connection with nonprecision approaches satisfies the training requirements for NDB/ILS or ILS/DME approaches, if those approaches are authorized.

(c) Flight training on PAR approaches is required, if the PAR approach is authorized.

(d) Flight training is required on MLS approaches, if the MLS approach is authorized.

(3) Circling Maneuvers.

(a) Flight training on the circling maneuver is required if the operator conducts circling maneuvers in weather conditions with ceilings below 1000 feet and/or visibilities below 3 statute miles. If the operator does not provide flight training on the circling maneuver, the operator's GOM must specifically prohibit flightcrews from conducting circling maneuvers when ceilings are below 1000 feet and/or visibilities are below 3 statute miles.

(b) Ground training must include instruction on procedures to be used to ensure that missed approaches executed during a circling maneuver will be conducted safely.

(4) *Visual Approaches.* Ground training must include instruction on the requirements specified in the operations specifications for acceptance of visual approaches.

(5) *Contact Approaches.* Because it is difficult to realistically simulate the conditions encountered during a contact approach, flight training on this procedure may not be productive. Inspectors should encourage realistic flight training scenarios, however, if realistic scenarios are not possible, inspectors should not require flight training that could have negative results. If contact approaches are permitted by the operator, ground training on contact approach procedures is required. The ground training must

include instruction on the conditions specified in the operations specifications that must be met before a contact approach can be requested and conducted. The ground training must also include the procedures to be used, the precautions to be exercised, and the locations where they may be conducted. If the operator does not provide training on contact approaches, the operator's manual must specifically prohibit flightcrews from conducting such approaches.

D. Maintenance Program. The airworthiness program for each of the operator's aircraft types and for avionics equipment must be structured to equip, configure, and maintain the operator's aircraft and systems to support CAT I AWTA operations. POI's must coordinate closely with the principal maintenance and avionics inspectors to ensure that the operator's aircraft are airworthy for the CAT I operations to be conducted.

E. Proving and Validation Tests. Since CAT I AWTA operations using basic air carrier operating minimums are the foundation or basic "building block" for IFR operations, additional validation testing above the normal aircraft proving test requirements is usually not necessary, or appropriate. Validation testing is not required if CAT I operations are evaluated during the aircraft proving tests required by Part 121 or Part 135. Validation tests are required, however, if an operator has previously conducted "VFR Only" operations and is proposing to conduct CAT I AWTA operations for the first time with existing aircraft. Validation tests may also be required when a Part 135 operator or an applicant for a certificate proposes to conduct CAT I operations with an aircraft in which Part 135 does not require that a proving test be conducted.

F. Higher Headquarters' Review and Concurrence. Higher headquarters' review and concurrence is generally not required for approval of CAT I AWTA operations using basic air carrier operating minimums. The exception, however, is when a special review and concurrence requirement has been established by the regional flight standards division and/or AFS-400.

557. CAT I OPERATIONS USING STANDARD AIR CARRIER OPERATING MINIMUMS. CAT I AWTA operations using standard operating minimums are conceptually based on the foundation or building block experience gained through the use of basic air carrier operating minimums. The lower operating minimums are achieved by increasing the precision of flightpath control through enhanced ground-based electronic equipment, visual aids, airborne equipment, flightcrew training and

qualification, and maintenance requirements. This paragraph addresses only those factors unique to the standard operating minimums. It is important to understand that this reduction of operating minimums only affects VIS/RVV/RVR requirements for straight-in instrument approach procedures. Minimum IFR altitudes or heights are not reduced. When inspectors evaluate a request from an operator or an applicant to conduct CAT I operations using standard operating minimums, the following factors must be considered (these are in addition to the factors discussed in paragraph 555 relating to basic air carrier operating minimums):

A. Ground-Based Visual Aids. A primary factor in achieving the lowest operating minimums is related to ground-based lighting aids. All CAT I nonprecision approach minimums below one statute mile or RVR 5000 (RVR 2000 for helicopters) and all precision approach minima below 3/4 statute mile or RVR 4000 (RVR 3500 for helicopters) are based on serviceable approach lighting systems. All precision approach minimums below 1/2 statute mile or RVR 2400 are based on serviceable approach, high intensity runway edge, high intensity touchdown zone, and high intensity runway centerline lighting. Both Part 97 and the applicable operations specifications establish the lowest operating minimums which can be authorized for the various lighting configurations.

B. Ground-Based Electronic Aids. The precision of the electronic guidance system heavily influences the lowest minimums authorized for a particular instrument approach procedure. For nonprecision approaches, the precision of VOR systems allows for lower minimums than NDB systems. Standard precision approach standard operating minimums can only be achieved when the ILS provides acceptable glidepath angles, threshold crossing heights, and acceptable course and glideslope guidance, down to an HAT of 200 feet.

C. Obstacle Clearance Limitations. Standard operating minimums can only be achieved in those cases where obstacle clearance requirements permit the standard DH or MDA. In other words, higher than standard operating minimums must be established when DH or MDA adjustments are necessary due to obstacle clearance requirements.

D. Reciprocating and Turbopropeller-Powered Airplanes and All Helicopters. If an inspector is authorized to use the basic air carrier operating minimums, and uses reciprocating or turbopropeller-powered airplanes or helicopters in CAT I AWTA operations, use of the standard

operating minimums is automatically authorized. This automatic authorization applies only to pilots who are not restricted by the high-minimum PIC requirements of the FAR's and operations specifications. There are usually no additional airborne equipment or training requirements other than those specified in paragraph 555.

559. USE OF STANDARD OPERATING MINIMUMS IN TURBOJET, TURBOFAN AND PROPFAN AIRPLANES. An operator shall not be authorized to conduct CAT I operations using standard operating minimums with turbojet, turbofan and/or propfan airplanes unless the aircraft, airport, runway, and flightcrews used are specifically qualified for the standard operating minimums. When evaluating a proposal to conduct CAT I operations using standard operating minimums, inspectors must consider the factors discussed in this paragraph and in paragraphs 555 and 557. Based on the results of the evaluation of these factors, an inspector must make a judgment concerning the certificate holder's competence to conduct operations using the lower standard operating minimums. The criteria to be used in making this judgment includes the criteria for use of basic air carrier operating minimums and the additional criteria discussed in this paragraph and AC 120-29 (as amended). Before authorizing a certificate holder to conduct operations using standard operating minimums with any turbojet, turbofan or propfan airplane, inspectors must determine that the overall CAT I AWTa program (including manuals and training) ensures the following criteria will be met during the conduct of those operations:

A. Airports and Runways. Operations must be restricted to those airports and runways where an authorized instrument approach procedure is established in accordance with Part 97 or the operations specifications and where the authorized instrument approach procedure permits the use of standard operating minimums. The airport facilities and services must meet the following additional criteria when standard operating minimums are used (see paragraph 553):

- Runways being used provide an effective runway field length of at least 1.15 times the landing field length required by FAR 121.195(b) or FAR 135.385(b)
- Runways are equipped with serviceable approach and runway lighting systems as required by the operations specifications
- NAVAID's serving the runways and the

obstacle clearance requirements for the runways permit the development of an unrestricted instrument approach procedure (that is a standard DH or MDA)

- ATC facilities and services are compatible with the use of standard operating minimums
- The weather reporting system must support operations using standard operating minimums (RVR is required for operations below 1/2 statute mile)

B. Additional Airborne Equipment. Additional airborne equipment is not usually required for nonprecision instrument approaches when standard operating minimums are used. Additional airborne equipment, however, is required before standard operating minimums can be used for precision approaches.

(1) *Flight Guidance and Automatic Control Systems.* The minimum additional airborne equipment required is either a single flight director or a single automatic approach coupler (autopilot). However, it is usually advantageous to install redundant equipment because the airborne equipment used, the flight training conducted, and the dispatch or flight release requirements are inter-related, especially when the probability of inflight failure is considered. As a result many operators use either dual flight directors with dual displays or a single flight director and a single approach coupler. See the discussion on training and dispatch or flight release requirements in the following paragraph.

(2) *Instrument Failure Detection and Warning System.* Unless the operator implements acceptable procedures and crew duty assignments to reliably and immediately detect failures/malfunctions, the aircraft should be equipped with an acceptable instrument failure and/or malfunction detection and warning system to provide immediate and accurate information to pilots of any failures in essential equipment. If such detection and warning systems are not installed, the certificate holder must implement acceptable procedures and crew duty assignments to reliably and immediately detect failures or malfunctions which could affect flight safety.

(3) Any additional equipment specified in the type design approval (certification) basis and/or the FAA-approved flight manual must also be installed and serviceable if it is required for operations using standard operating minimums.

C. *Pilot Training.* The operator's approved training program, ground and flight, must provide the flightcrews with the skills, knowledge, and proficiency necessary to safely conduct operations using standard operating minimums. Use of the "stabilized approach" is mandatory for all turbojet operations. Training on the use of standard operating minimums for nonprecision approaches can usually be adequately addressed in ground training, since additional airborne equipment is not usually required for nonprecision approaches. Ground training on use of standard minimums during nonprecision approaches should address the required ground-based visual aids (lighting and marking), and the authorized procedures and operating minimums. The ground training should also address any additional required procedures and crew duties, and the increased difficulty encountered during the transition from instrument to external visual references created by the reduced seeing-conditions associated with use of standard operating minimums. Training on the use of standard operating minimums for precision approaches must be more extensive and involves both ground and flight training curriculum segments.

(1) *Ground Training for Precision Approaches.* The ground training curriculum segments for all categories of training must include instruction on the following factors as they relate to the use of standard operating minimums during precision approaches:

- Required ground-based visual aids
- Authorized instrument approach procedures, and operating minimums
- Additional required procedures and crew duties
- Seeing-conditions associated with the transition from instrument to visual flight
- The necessity for maintaining a full-time instrument reference by one pilot until passing 100 feet AGL
- Required additional airborne equipment
- Critical reasons for proper "eye reference" position (proper sitting height)
- Required pilot training and qualifications
- Methods for determining that the airplane is airworthy for operations using standard

operating minimums, and the associated dispatch or flight release requirements

(2) *Flight Training for Precision Approach.* The primary objective of flight training on the use of standard operating minimums is to ensure that the flightcrew has the skills, knowledge, and proficiency necessary for meeting the operational concepts and criteria of operations using the lower minimums. In addition, pilots must be specifically qualified to conduct precision approaches using the standard operating minimums. In order to qualify, pilots must satisfactorily demonstrate to a check airman or an FAA inspector, either inflight or in an acceptable simulator, the competence necessary to safely conduct these operations. The maneuvers on which pilots must be trained and checked depends on the equipment installed and the dispatch (or flight release) option selected by the operator. The appropriate maneuvers for each equipment installation and dispatch (or flight release) option are described in the following subparagraphs. The maneuvers must be accomplished in accordance with the policies, standards, procedures, and crew duties specified in the operator's manuals and approved training program. When the maneuvers are performed in a flight simulator which realistically reproduces the seeing-conditions encountered and the required ground-based visual aids, the transition from instrument to visual reference should begin at 200 feet as it would normally occur in actual operations. However, when these maneuvers are accomplished in an airplane, the maneuvers (except for "raw data" approaches) must be conducted "under the hood" down to 100 feet. This lower height during training or checking in the actual airplane is necessary to realistically simulate the difficulties encountered during the transition from instrument to visual reference at 200 feet in actual weather conditions even though the flight check is administered in much better seeing-conditions.

(a) For operations based on dual independent flight directors with dual displays, pilots must be trained and demonstrate competence on at least the following maneuvers: ILS/MLS approach flown to 200 feet (100 feet in an airplane), using the flight director system followed by a transition from instrument flight to visual flight to complete a landing; and an ILS/MLS approach flown to 200 feet (100 feet in an airplane) using the flight director system, with or without a transition to visual flight, followed by a missed approach conducted by reference to instruments.

(b) For operations based on a single flight director system with dual displays and on an automatic approach coupler (autopilot), pilots must be trained in and demonstrate competence on at least the following

maneuvers: an ILS/MLS approach flown to 200 feet (100 feet in an airplane) using the flight director system; and an ILS/MLS approaches flown to 200 feet (100 feet in an airplane) using the automatic approach coupler (autopilot). One of the approaches must be followed by a transition from instrument flight to visual flight to complete a landing while the other must be followed, with or without a transition to visual flight, by a missed approach conducted by reference to instruments.

(c) For operations based on a single flight director system or a single approach coupler (autopilot), pilots must be trained in and demonstrate competence in at least the following maneuvers: an ILS/MLS approach using only "raw data" flown to 200 feet (200 feet in an airplane); an ILS/MLS approach flown to 200 feet (100 feet in an airplane) using either the flight director or the autopilot, as appropriate. One of the approaches must be followed by a transition from instrument flight to visual flight to complete a landing, while the other must be followed, with or without a transition to visual flight, by a missed approach conducted by reference to instruments.

(d) For operators authorized to conduct PAR approaches, pilots must also be trained in and demonstrate competence in the PAR approach. Approaches using PAR procedures must be flown to 200 feet (100 feet in an airplane). The PAR approaches may be followed by either transition to visual flight to complete a landing or a missed approach conducted by reference to instruments.

D. Operations Manuals and Flightcrew Duties. The operator's manuals must provide clear policies, procedures, and the direction and guidance necessary to ensure the safe conduct of those operations using lower than the standard operating minimums. The manual material must address and meet the criteria specified by the FAR's, this handbook, and any appropriate advisory circulars. The manuals must adequately address the items discussed in paragraph 555 B, as those items relate to the conduct of CAT I operations using standard operating minimums with turbojet, turbofan, or propfan airplanes.

E. Maintenance Program. Before approving an operator's proposal to use turbojet, turbofan, and/or propfan airplanes in CAT I operations that use standard operating minimums, inspectors must ensure that the operator's approved airworthiness program includes the special airborne equipment required for the standard minimums. Close coordination with the PMI and PAI is essential before granting operational approval.

F. Proving/Validation Tests. The special requirements of operations with standard operating minimums dictate that an operator validate its competency to safely conduct these operations. Since additional airborne equipment or special procedures are not required for reciprocating/turbopropeller-powered airplanes and all helicopters, validation tests of those operations are a normal part of the proving test necessary for introducing these aircraft into revenue service. The validation test for turbojet, turbofan, and propfan airplanes can also be conducted as an integral part of the initial proving tests.

Such validation testing is appropriate even though the high-minimum PIC requirements initially prohibit pilots from using the standard operating minimums. Additional validation testing is necessary in situations where the operator's competence to safely conduct CAT I operations using standard operating minimums was not demonstrated before introducing an aircraft into revenue service. One example would be when required airborne equipment is added at a later date.

G. Higher Headquarters' Review and Concurrence. AFS-400 review and concurrence is usually not required before approval of standard operating minimums. Regional flight standards division review and concurrence, however, is required before approval of a particular operator's proposal to conduct initial turbojet operations with standard minimums. Unless otherwise directed, higher headquarter's review and concurrence is not required for all other operations using standard minimums.

561. SPECIAL CAT I OPERATIONS. Special CAT I AWTAs operations, by definition, require the use of airborne and/or ground-based or spaced-equipment over and above the minimum equipment necessary to operate in the U.S. national airspace. Special CAT I operations usually also require special knowledge, skills, proficiency, and procedures. As a result, changes and amendments to the operator's overall CAT I AWTAs operations program are usually necessary to ensure safe conduct of these operations. There is additional criteria which must be incorporated into an operator's program for special CAT I operations. Special CAT I operations currently involve the use of VOR/DME-based RNAV or DME/DME-based RNAV, LORAN C, and ARA/OSAP/HEDA instrument approaches, or any landing operation using autoland or heads-up display (HUD) systems. In general, special CAT I operations require changes to an operator's operational policy, guidance, procedures, flightcrew training, and qualification and maintenance programs. These operations are based on the use of airborne systems which have been certificated (type design approved) or otherwise shown to

be airworthy for the proposed operation with an acceptable demonstration of ability and capability by the operator.

A. Autoland or Heads-Up Display (HUD) Systems. Before issuing authorization to use autoland or HUD systems in any operation, the inspector must determine that the operator's overall program will ensure that the equipment is properly installed and properly maintained for approach and landing operations. The operator's manuals and training programs must be evaluated to determine that they provide sufficient policy, guidance, operational procedures, and the training and checking necessary for the safe conduct of autoland or HUD operations. Inspectors must determine that these operations will be conducted in accordance with any necessary operational restrictions or limitations, applicable FARs, the standard operations specifications, and accepted safe operating practices. Approval is granted by the issuance of operations specifications paragraphs C61, C62, H110, or H111 as applicable.

B. VOR/DME and DME/DME-Based RNAV Systems. Before issuing authorization to conduct instrument approach procedures with RNAV systems, inspectors must determine that the operator's overall CAT I operations program will ensure that the operation can be conducted safely. Inspectors must also determine that the following additional criteria will be met:

(1) *Required Airborne Equipment.* The installed RNAV system must be approved in accordance with AC 90-45A (or equivalent criteria) for CAT I approach and landing operations. This approval must be valid for the areas, airports, and runways where the use of the system is proposed and any other equipment required must be serviceable.

(2) *Authorized Instrument Approach Procedures and Operating Minimums.* The use of the RNAV system must be restricted to those instrument approach procedures and operating minimums where the system can perform its intended function. The instrument approach procedures used must be authorized in accordance with the operations specifications. In general, VOR/DME-based RNAV and DME/DME-based RNAV systems can be used to conduct any VOR/DME-based RNAV and DME/DME-based RNAV instrument approach procedure established in Part 97. Other special RNAV instrument approach procedures can be authorized by listing them in paragraph C64 or H112 of the operation specifications. During the initial six months of operation with a particular aircraft and RNAV system combination,

the authorized CAT I minimums must be increased by adding 200 feet to the HAT/HAA and 1/2 statute mile (RVR 2400) to the VIS/RVR.

(3) *Operations Manuals and Training.* The operator's manuals and training programs must provide sufficient policy guidance on the use of authorized instrument approach procedures and operating minimums. The manuals must include the specific airborne and ground-based equipment required for the RNAV approaches and the means for determining the airworthiness status of the required equipment, including any MEL provisions. The manuals must include the specific flightcrew procedures to be used and any additional dispatch (flight release) restrictions or limitations which must be met. The training and qualification program must ensure that flightcrews acquire any special knowledge, skills, and proficiency necessary for the conduct of RNAV instrument approach operations. If the flight guidance information is presented on a map display, without a simultaneous display of raw data information, the pilot-not-flying must select and display raw data information from the primary NAVAID's of the approach being flown.

(4) *Maintenance Program.* The airworthiness program must ensure that the required equipment is properly installed and maintained and continually adheres to the required system performance and configuration standards.

(5) *Validation Test.* Validation tests are required for initial operations with a particular type of RNAV system unless the use of this system was adequately demonstrated during the proving tests associated with the introduction of an aircraft into revenue service by the operator.

(6) *Higher Headquarters' Review.* Initial authorization for an operator to use a particular type of RNAV equipment requires regional flight standards review and concurrence. AFS-400 review and concurrence is not required unless it is specifically requested.

C. Loran-C. The use of Loran-C instrument approaches is not yet operationally mature enough to establish definitive approval standards. When the necessary level of experience is obtained, formal approval standards will be established. During the interim period, any requests for approval to use Loran-C instrument approach procedures must be reviewed and concurred with by AFS-400. AFS-400 will provide the current national policy, criteria, and guidance for authorizing Loran-C nonprecision approaches.

D. ARA's/OSAP's/HEDA's. All helicopter operations

using ARA's, OSAP's, or HEDA's must be approved in accordance with AC 90-80 (as amended).

E. *IFR Approaches in Uncontrolled Airspace.* The operator can be authorized to conduct CAT I AWTA operations in uncontrolled airspace if the requirements of the operations specifications are met.

(1) *Non-Scheduled Operations.* For non-scheduled operations, the inspector must ensure that the operator's CAT I operations program provides the policy, and direction and guidance necessary to safely conduct these operations. Inspectors must also ensure that the certificate holder's manuals cover the specific procedures which must be used, and the facilities and services which must be available and operational for the safe conduct of instrument approach operations in uncontrolled airspace.

(2) *Scheduled Operations.* In addition to meeting the requirements for non-scheduled operations, the inspectors must ensure that the facilities and services necessary for the safe conduct of instrument approach procedures in uncontrolled airspace during a scheduled operation are specified in the operations specifications.

(3) *Method of Approval.* The

authorizations to conduct instrument approach procedures in uncontrolled airspace are granted by issuing paragraph C64 or H113 of the operations specifications.

563. APPROVAL OF CAT I ALL-WEATHER OPERATIONS. CAT I AWTA operations approvals are granted by issuance of, or amendments to, the operations specifications. The authorizations, limitations, and provisions applicable to CAT I operations are specified in Part C of the operations specifications (see C51, C52, C53, and C54). Operations specifications authorizing reciprocating and turbopropeller-powered airplane CAT I operations that use ICAO standard NAVAID's and ASR's and PAR's may be approved by certificate holding district offices without higher headquarters' review and concurrence, if the applicable conditions of this handbook are met. All turbojet, turbofan and propfan operations authorized to use the standard operating minimums and all RNAV instrument approach operations are required to have regional flight standards division review and concurrence before approval. All operations using NAVAID's which are not ICAO-standard NAVAID's (such as Loran C, GPS, ARA, and OSAP) are required to have both regional flight standards division and AFS-400 review and concurrence before approval.

564. - 569. RESERVED.

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*TBD=TO BE DEVELOPED

VOLUME 6. SURVEILLANCE

CHAPTER 1. GENERAL POLICIES AND PROCEDURES

SECTION 1. GENERAL

1. INTRODUCTION. The FA Act authorizes the Secretary of the Department of Transportation to conduct inspections of air operators. The FAA is empowered, by statutory requirement, "...to carry out the functions, powers, and duties of the Secretary relating to aviation safety." One of the most significant duties of the FAA is to conduct surveillance in all areas of air transportation safety. Surveillance is a continuing duty and responsibility of all aviation safety inspectors in the flight standards organization. The term "surveillance," as used in this handbook, relates to this ongoing duty and responsibility and related programs. Surveillance programs provide the FAA with a method for the continual evaluation of operator compliance with the FAR's and safe operating practices. Information generated from the surveillance programs permits the FAA to act upon deficiencies which affect or have a potential effect on aviation safety. For surveillance programs to be effective, they must be carefully planned and executed during the conduct of specific inspection activity. Inspections provide specific data which can be further evaluated, therefore they support and maintain ongoing surveillance programs. Inspections are specific work activities which have the following characteristics:

- A specific work activity title and PTRS code
- A definite beginning and a definite end
- Defined procedures
- Specific objectives
- A requirement for a report of findings (either positive, negative, or both)

3. OBJECTIVE OF SURVEILLANCE PROGRAMS. The primary objective of surveillance is to provide the FAA, through the conduct of a variety of inspections, with an accurate, real-time, and comprehensive evaluation

of the safety status of the air transportation system. This surveillance program objective is accomplished by inspectors performing the following:

- Determining each operator's compliance with regulatory requirements and safe operating practices
- Detecting changes as they occur in the operational environment
- Detecting the need for regulatory, managerial, and operational changes
- Measuring the effectiveness of previous corrective actions

5. PLANNING AND EXECUTING SURVEILLANCE PROGRAMS. There are four phases involved in planning and executing any type of surveillance program. These phases are as follows:

- *Phase One* - Developing a surveillance plan by determining the types of inspections necessary and the frequency of those inspections
- *Phase Two* - Accomplishing the surveillance plan by conducting the inspections
- *Phase Three* - Analyzing surveillance data gathered from inspection reports and related information from other sources
- *Phase Four* - Determining appropriate course of action

A. Phase One: Developing a Surveillance Plan. The development of a surveillance plan requires planning at the headquarters, regional, district office, and individual inspector levels. A surveillance program may be based on the need to conduct routine and ongoing surveillance or the need to conduct special emphasis surveillance as a result of certain events such as accidents, related incidents, related

violations, and strikes. When planning a surveillance program, FAA personnel should determine the program objectives, evaluate the resources available, and determine the specific types and numbers of inspections to be conducted in support of that program. The National Program Guidelines (NPG) provide a base level of surveillance data which should be evaluated. The results of this evaluation should be used as a basis for planning future surveillance programs. This information along with other related information such as previous inspection reports, accident/incident information, compliance and enforcement information, and public complaints, should be used to determine both the types of, and frequency of, inspections to be conducted during the surveillance program. When developing a surveillance program, inspectors should first consider NPG requirements. The NPG requirements, however, only provide a base level of surveillance data. Therefore, an operator's compliance status and other factors such as ongoing certification work activities should be considered when developing a surveillance program. Other factors which should be considered are the geographic areas where the various types of inspections should be conducted and the frequency of those inspections.

B. *Phase Two: Conducting Surveillance Plan Inspections.* During the conduct of the surveillance plan inspections, accurate and qualitative inspection reporting is essential. High quality inspection reporting is necessary for the effective accomplishment of the third and fourth phases of a surveillance program.

C. *Phase Three: Analyzing Surveillance Data.* After the inspection data has been reported, an evaluation of the information obtained from inspection reports and related sources must be conducted. The purpose of this

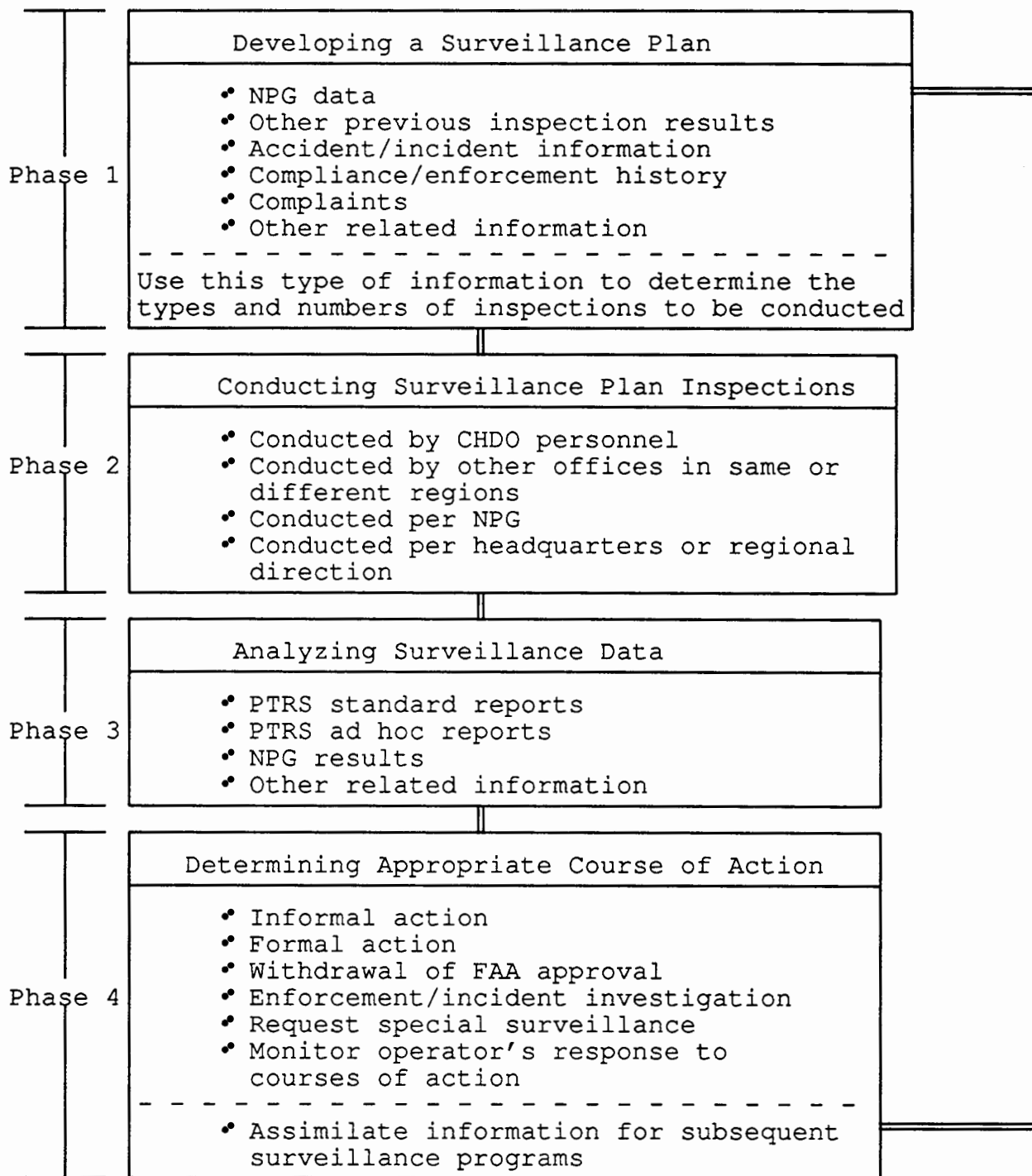
evaluation is to identify the areas of concern and note areas such as the following:

- Noncompliance with regulations or safe operating practices
- Both positive and negative trends
- Isolated deficiencies or incidents
- Causes of noncompliance, trends, or isolated deficiencies

D. *Phase Four: Determining Appropriate Course of Action.* Inspectors and POI's must use good judgment when deciding on the most effective course of action to be taken. The appropriate course of action depends on many factors. There are also many actions which can be taken, such as: taking no action; informal discussion with the operator; formal written request for corrective action; withdrawal of FAA approval of a program, manual, or document; and, initiation of an incident or enforcement investigation. Results of the evaluation of surveillance data and the operator's response to the course of action taken should be considered. Part of the fourth phase of a surveillance program is for the FAA to determine, as a result of the information gathered from the program, what will become the inspection requirements for subsequent surveillance programs. Depending on the situation, it may be appropriate to increase or decrease the rate at which inspections are conducted during subsequent surveillance programs. It may be appropriate to change the emphasis or objectives of surveillance programs by changing the types and numbers of inspections to be conducted.

E. The following diagram illustrates the four phases of a surveillance program:

THE FOUR PHASES OF A SURVEILLANCE PROGRAM



7. SURVEILLANCE PLANNING AND EVALUATION RESPONSIBILITIES. There are six organizational elements within flight standards which are responsible for ensuring that comprehensive surveillance programs are to be developed and maintained. These six elements are as follows:

- Washington headquarters
- Regional flight standards divisions
- District offices
- Principal operations inspectors
- Geographic program managers
- Aviation safety inspectors

A. Washington Headquarters. Washington headquarters (AFS-1) has the primary responsibility for establishing national surveillance programs and for developing the direction and guidance for inspectors to use when conducting these programs. These responsibilities include developing pertinent inspector handbook material and other written material to control and guide national inspection programs such as NPG and other special surveillance programs. Washington headquarters is responsible for evaluating surveillance data from a national standpoint. The data used for national evaluation is obtained from the centralized national database. Washington headquarters has the additional responsibility of ensuring that the NPG inspection data and other types of surveillance data are available to the appropriate regional offices.

B. Regional Flight Standards Divisions. Regional flight standards division offices have primary responsibility for the implementation of national surveillance programs including the assignment of NPG and other national inspection requirements. The regional offices serve to assure quality control and to coordinate district office surveillance planning. These regional offices are also responsible for evaluating surveillance data from a regional standpoint. Regional offices must also ensure that reports of nationally or regionally directed inspections are forwarded to the appropriate CHDO.

C. District Offices. FAA district office managers play a key role in developing effective surveillance programs. These managers are responsible for ensuring that principal operations inspectors, program managers,

and unit supervisors are planning and conducting effective surveillance programs. These programs must include inspections of operators whose certificates are held by the district office as well as inspections of operators who conduct operations within the geographic area of the district office. District office managers are responsible for ensuring that these programs provide high quality surveillance data.

D. Principle Operations Inspectors. POI's are the primary surveillance program planners in the FAA since they are the focal point for all operational matters between the FAA and the certificate holder. POI's must ensure that there are periodic reviews of all aspects of the certificate holder's operations. They must specifically determine the operator's compliance status by establishing effective surveillance programs, and evaluating previous surveillance data and other related information. POI's must establish a continuing program for evaluating surveillance data to identify trends and deficiencies and to decide upon and take appropriate courses of action.

E. Geographic Program Managers. Geographic program managers are responsible for planning and carrying out inspection programs within their area of responsibility and for ensuring the inspection results are accurately recorded. These managers ensure that all of the activities of certificate holders conducting operations in their geographic area are inspected and the results are reported to the POI through the Program Tracking and Reporting System (PTRS). The geographic program manager is specifically responsible for: assigning available inspectors to conduct the necessary inspections; providing on-the-job training for assigned inspectors; and for supervising assigned inspectors for efficiency and effectiveness.

F. Aviation Safety Inspectors. Individual inspectors are responsible for conducting inspections in accordance with the direction, guidance, and procedures in this handbook. A primary responsibility of each inspector is to report inspection results in a clear, concise, and factual manner. Supervisory inspectors are responsible for reviewing inspection reports for clarity and accuracy. Supervisory inspectors should also review any on-site corrective actions that may have been taken by the inspector, and determine if any follow-up action is appropriate.

9. DETERMINING INSPECTION REQUIREMENTS. When developing a surveillance program, POI's must determine the number and types of inspections that should be conducted. For a routine surveillance program, there should be a representative number of each type of inspection. Circumstances or results from previous

inspections, however, may indicate that a specific area should receive emphasis and therefore more inspection activity of a particular type. Conversely, surveillance data may indicate that certain types of inspections are ineffective or that fewer inspections can effectively accomplish the objective.

A. When determining the number of inspections that should be accomplished, the POI should consider the complexity and size of the operator. A method which can be used to consider complexity and size is to separate an operation into homogeneous groups. Examples of homogeneous groups include pilots, mechanics, aircraft, flight attendants, training and qualification records, line stations, and various types of manuals. Each of these groups can be considered separately when determining the

number and types of inspections that should be conducted.

B. When considering a large homogeneous group, such as trip records, certain statistical methods may be useful to inspectors for determining how many inspections to conduct.

(1) A specific number, or sampling, of a group can produce a 95% confidence level that a sufficient number of inspections will be accomplished to properly assess the compliance status of that particular area. The following table provides guidance for sample sizes (the number of inspections) of varying population sizes (the homogeneous group) that will result in a statistical confidence level of 95%:

TABLE 6.1.1.1
Number of Inspections Recommended to Achieve
95% Confidence Level

| Population of Homogeneous Group | Recommended Number of Inspections |
|---------------------------------|-----------------------------------|
| Up to 100 | 50% (50) |
| 200 | 40% (80) |
| 400 | 35% (140) |
| 500 | 33% (165) |
| 1000 | 28% (280) |
| 2000 | 16% (322) |
| 3000 | 11% (330) |
| 4000 | 8.8% (352) |
| 5000 | 7.7% (355) |
| 10,000 | 3.7% (370) |

(2) Samples may be drawn from the homogeneous group in several ways. To be acceptable for statistical evaluation, however, the sample to be inspected must be random. The following is one method of conducting a random sampling. A sampling interval must first be established. For illustration purposes, an interval of nine will be used. Out of the first nine items of a rank (airman records in alphabetical order), the first item is chosen at random. Thereafter every ninth record

is selected. For example, if a sample size of 330 records is selected from a homogeneous group of 3000 records (see table 6.1.1.1), the sampling interval would be every ninth record (3000 divided by 330). If an inspection starts at a randomly selected record between 1 and 9, and continues with the selection of every ninth record thereafter, a 95% confidence level will be produced. When a method such as this is used, all elements (records) in the group are given an equal chance of inclusion in the sample.

C. Each type of inspection varies in its basic objective. Many types of inspections, however, share common events or elements in the aviation system. For example, pilots are evaluated during en route inspections, IOE inspections, simulator training sessions, and required checks. POI's should consider this when developing surveillance programs. For example (and to illustrate the use of the previous table), if an operator employs 500 flight crewmembers (PIC's, SIC's, and FE's), it is recommended that at least 33% (or 165 flight crewmembers) be evaluated during a surveillance program. If the objective is to inspect this number of flight crewmembers, the inspections may include any combination of en route inspections, IOE observations, training sessions, line checks, or proficiency checks for a total of 165 inspections.

D. The information in table 6.1.1.1 is guidance only and should not be construed as a mandatory method for determining the number of inspections to be conducted during a surveillance program. The primary objectives of a surveillance program are for inspectors to conduct inspections which are qualitative and which provide effective results. The quality of inspections must be given a higher priority than the actual number of inspections conducted. Inspections that produce qualitative information which can be systematically evaluated and used as a basis for taking effective courses of action are more important than the number of inspections conducted. POI's should review and when necessary revise their surveillance programs semi-annually and annually to adjust them according to national surveillance programs and to ensure that the programs are effective and are meeting planned objectives.

11. EVALUATION OF INSPECTION RESULTS.

A. Inspector evaluation of inspection results is a key phase of any surveillance program. The primary purpose of evaluating surveillance data is to identify both negative and positive trends as well as deficiencies which are not associated with an apparent trend. POI's should determine the appropriate course of action to take based on their evaluation of inspection results. This evaluation of inspection results is also important in terms of redefining and implementing subsequent surveillance objectives and inspection activity. POI's must adopt systematic methods that permit accurate and effective evaluation of inspection results. Additionally, other related information from incidents, accidents, enforcement actions and other sources may provide valuable trend information which may relate to the operator's safety and compliance status. POI's should use all available

inspection results and related information to decide on appropriate courses of action. For example, if in a series of ramp inspection reports a trend of deficiencies in the use of the MEL is identified, but the cause of these deficiencies cannot be identified, the POI may need to adjust the emphasis on the types of inspections conducted. In this case, training program inspections, manual inspections, or flight control inspections (flight release procedures) may be more effective in determining the cause of these deficiencies. In this example, the POI's initial course of action might be to informally discuss the identified trend of deficiencies with the operator. After other types of inspection results identify the cause of the deficiencies, the POI can take an effective course of action by formally requiring the operator to correct the problem at its source. The previous example is illustrative only of how surveillance information may be used to determine the courses of action to be taken for a particular situation.

B. There are several broad areas of interest in a surveillance program that, when organized into more defined elements, will provide an effective and comprehensive evaluation of surveillance data. The Program Tracking and Reporting System (PTRS) is an effective tool which the POI should use during the ongoing evaluation of a surveillance program. Inspection results are available in ad hoc formats or in established report formats for real-time and comprehensive data analysis (see section 2). The PTRS is designed to process surveillance data by organizing the data into broad areas of interest and by collecting elements of information within those broad areas. The PTRS is discussed in detail in section 2 of this chapter. This system provides for the organized retrieval of surveillance data that is related to a broad area of interest. In the PTRS these broad areas of interest are referred to as "primary areas." The PTRS, as currently designed, organizes the broad areas of interest (primary areas) under the following titles:

- Air Carrier Operations
- General Aviation Operations
- ATC/Airspace
- Airports
- Air Agencies
- Air Carrier Airworthiness
- General Aviation Airworthiness
- Aircraft ATA Codes

- Crewmembers

(1) Each primary area is further organized by a key word list of elements of information. This framework provides a method for POI's to use when organizing surveillance information for effective trend evaluation strategies. The following is a list of the major titles of the elements of information (relating to operations) that are currently designed into the PTRS:

- Personnel
- Manuals
- Records/Reports
- Training
- Facilities/Equipment
- Conformance (compliance with regulations and safe operating practices)
- Operations (flight conduct)
- Flight Control

- Key Personnel Programs

- Management
- Aircraft

(2) Each of these elements of information provides for a database of related information obtained from inspection reports. By grouping inspection results from related types of inspections, any developing trends or areas that will require an appropriate course of action (or additional emphasis) during subsequent inspections, are more readily identified. For example, surveillance data related to the element of information titled "personnel," can be obtained from the following types of related inspection reports:

- En route inspections (IOE and line checks)
- Ramp inspections
- Proficiency check inspections
- Training inspections
- Other related inspections

12. - 24. RESERVED.

[PAGES 6-8 THROUGH 6-14 RESERVED]

VOLUME 6. SURVEILLANCE

CHAPTER 1. GENERAL POLICIES AND PROCEDURES

SECTION 2. REPORTING ON SURVEILLANCE

25. INTRODUCTION. The Program Tracking and Reporting Subsystem (PTRS) is a comprehensive information management and analysis system used in many flight standards job functions. It provides the means for the collection, storage, retrieval, and analysis of data resulting from the many different job functions performed by inspectors in the field, the regions, and headquarters. PTRS is comprised of four components, each of which is described in detail in this section. This system provides inspectors and managers with current data on airmen, air agencies, air operators, and many other facets of the air transportation system. The various retrieval and reporting features of this system permit managers, supervisors, and principal operations inspectors to effectively plan work programs, prioritize activities and specific job tasks, and to analyze the safety and compliance status of various elements throughout the air transportation industry. This section provides the background and developmental considerations that resulted in the PTRS, discussions and illustrations of the various components of the system, and instruction and guidance on the use of the system.

27. BACKGROUND.

A. Investigations and evaluations of FAA operational procedures by Congress and other government agencies, as well as internal audits conducted by the FAA, have shown that the FAA collects a vast amount of aviation data to support its responsibility for ensuring aviation safety. These studies contain many factors the FAA must consider to obtain optimal compliance with the FAR's and safe operating practices. One of the most important factors is a well-planned and implemented surveillance program carried out by a trained and experienced FAA inspector workforce. These studies revealed, however, that an FAA program did not exist for a consistent and efficient organization and collection of data or for the timely identification and monitoring of trends involving safety in the air transportation industry.

B. Recognizing the need for a modern method to manage aviation data, the FAA established the Aviation Safety Analysis System (ASAS) in August 1982. ASAS is a nationally-distributed information network designed to

collect, store, and organize the many types of aviation safety data in a single system. ASAS consists of several separate subsystems designed to improve the FAA's ability to gather and analyze aviation safety data within all aviation standards offices. The primary objectives of ASAS are: to provide data support for identifying potential and existing safety issues; to supply management with information for a more effective use of FAA resources; to provide the FAA with the ability to respond to internal and external requests for information; and, to provide timely and accurate information that is accessible to all appropriate system users. ASAS integrates and standardizes current and future databases and maintains these databases on central host computers. These host computers are presently linked by a telecommunications network to work stations located at all aviation standards facilities.

C. In the early stages of development, however, ASAS did not address the FAA's needs to categorize and effectively analyze surveillance data in a logical and meaningful manner. An integral part of the evolving ASAS was the Flight Standards Work Program Management System (WPMS). WPMS provided a standard method for planning Flight Standards' work functions and for recording the accomplishment of inspector activities. Additionally, it provided rapid access to a large volume of data and could generate reports for district offices, regions, and headquarters. The major objectives of WPMS were as follows: to relieve inspectors of certain paperwork and administrative activities; to standardize and automate the methods for programming and recording work activities; and, to provide an automated capability for retrieving data. WPMS increased the efficiency of scheduling and tracking flight standards work functions. Flight Standards' use of the WPMS demonstrated that it was a viable method for taking advantage of computerized automation capabilities in work activity performance. It became apparent to many users however, that there were ways in which WPMS could be improved to make it more useful to field inspectors and to all levels of FAA management. The computer system could be used in a manner which would allow inspectors to quickly identify trends and deficiencies that could affect aviation safety. For work activity management to be efficient, the system should not only program and record the types of work activity performed, but also identify areas

where work priorities should be changed or areas where increased or different types of activity should be accomplished. WPMS provided information on what type of and how many inspections of a certain type were performed, but did not lend itself to summary or ad hoc reporting of the actual inspection results or comments recorded by inspectors. As a result, the Uniform Task Reporting (UTR) system was developed between 1987 and 1988 in an attempt to resolve these deficiencies. The UTR system provided inspectors with the data processing tools they needed to best accomplish their job function responsibilities.

D. The UTR system included not only the existing WPMS functions, but also a method for readily identifying deficiencies and trends (both negative and positive). The concept included a single reporting form to collect information about many types of inspector work activities. It contained a method for specifically coding the inspector's comments or remarks about the inspection, evaluation, or observation. The codification of inspector comments took advantage of computer capability to generate more defined summary and ad hoc reporting. This codification made possible a variety of information strategies. After extensive field testing of the UTR system, the WPMS and UTR systems were updated and combined into one system currently known as PTRS.

29. OBJECTIVES OF PTRS. The broad objective of PTRS (Program Tracking Reporting Subsystem) is to provide inspectors with an information processing and management system which is comprehensive in scope, provides current data in a manageable format, and offers effective data retrieval and reporting capabilities. In addition to the original were also added to the PTRS:

- To provide a systematic and organized method for inputting data through the use of job aids and standardized codes
- To provide a method for the structured retrieval of stored data in a variety of automated formats (standard reports or with total ad hoc flexibility)
- To have the capability for storing data in a manner which permits effective trend analysis (both positive or negative trends) as well as the identification of specific deficiencies
- To the multiple and nonstandard paper

inspection forms with one generic form compatible with computer input requirements

- To permit employment of certain data analysis strategies to determine if specific inspection activities or other job functions warrant either increased or decreased work activity

31. THE COMPONENTS OF PTRS. The four components of PTRS are as follows:

- PTRS Data Sheet
- PTRS comment codes (These are alpha/numeric codes derived from nine "primary area" alpha codes and "key word list" numeric codes.)
- Job aids
- Standard and ad hoc reports

A. *PTRS Data Sheet.* The PTRS Data Sheet is a single form designed to be used for all inspector work functions (see figure 6.1.2.1). This form has spaces for manually recording information that describes the type of job function performed and the results of that activity, including any inspector opinions, comments, and remarks. Once the information from the PTRS Data Sheet is entered into the computer and the computer data is backed-up, the form may be destroyed. Inspectors may enter the information required by the PTRS form directly into the computer without actually completing the form, provided appropriate computer work stations are available. A full description of the form and detailed instructions for its completion are in the FAA, PTRS User Manual. This form is divided into the following sections:

(1) *Section 1 (PTRS Activity Section).* This section has spaces for recording information that describes the type of job function performed, the overall results of the activity, data pertinent to the subject of the activity, and other information required for PTRS input.

(2) *Section 2 (Personnel Section).* This section provides space to record information about personnel that was acquired during the accomplishment of the job function. This personnel information is for persons other than those recorded in section 1. For example, it includes personnel such as SIC's, FE's, flight attendants, supervisors, foremen, fuelers, and any other personnel the inspector wants to include in the record. The inspector may enter in Section 2 any remarks which are significant to the job function such as telephone numbers, duty time,

where work priorities should be changed or areas where increased or different types of activity should be accomplished. WPMS provided information on what type of and how many inspections of a certain type were performed, but did not lend itself to summary or ad hoc reporting of the actual inspection results or comments recorded by inspectors. As a result, the Uniform Task Reporting (UTR) system was developed between 1987 and 1988 in an attempt to resolve these deficiencies. The UTR system provided inspectors with the data processing tools they needed to best accomplish their job function responsibilities.

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**FIGURE 6.1.2.1
THE PTRS DATA SHEET**

| PROGRAM TRACKING AND REPORTING SUBSYSTEM DATA SHEET | | | | | | |
|---|------------------|------------------|---|---|---------------------------------|--|
| SECTION I Inspector Name Code: _____ Record ID: _____ | | | | SECTION IV — COMMENT SECTION (unlimited) | | |
| Activity Number: | FAR: | NPG: | COMMENT | | | |
| Status: (COP) | Callup Date: | Start Date: | Primary/Key | CODES Opinion (UPIE) | Comment Text (unlimited length) | |
| Results: (ACEFISTX) | Pass/Fail (P/F): | Completion Date: | | | | |
| Designator: | Airman Cert #: | | | | | |
| Airman Name/Other: | | | | | | |
| Aircraft Reg #: N | | | | | | |
| Make-Model-Series: _____ - _____ - _____ | | | | | | |
| Loc/Departure Point: | Arrival Point: | Flight #: | | | | |
| Investigation # (12): | | | | | | |
| Tracking: | | | | | | |
| Miscellaneous: | | | | | | |
| Numeric Misc: | | | | | | |
| Local Use: | | | | | | |
| Regional Use: | | | | | | |
| National Use: | | | | | | |
| Activity Time: | | | | | | |
| Travel Time: | | | | | | |
| Triggers: (Activity #/ INVS/ REXM/ R # (repeat)) | | | | | | |
| _____ | | | | | | |
| _____ | | | | | | |
| SECTION II — PERSONNEL (unlimited) | | | | | | |
| Personnel Name: | Position: | Base: | Remarks (35 Characters) | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| SECTION III — EQUIPMENT (unlimited) | | | | | | |
| Manufacturer: | Model: | Serial #: | Remarks (23 Characters) | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | Date: _____ Originator: _____ Office: _____ | | | |
| | | | Inspector Signature: _____ Supervisor Initials: _____ | | | |

B. *PTRS Comment Codes.* The PTRS comment codes are the second component of PTRS. These alpha/numeric codes categorize nine specific "primary areas" (the alpha element of the code), which can be associated elements of information from the "key word list" (the numeric element of the code). For example, one of the nine "primary areas" is "air carrier operations" (codified by the alpha character, "A"). An associated element of information from the "key word list" is "training program" (designated by the numeric characters, "401"). Therefore, an inspector can codify comments about an air carrier training program inspection by entering the code, "A401" (air carrier operations/training program) in section 4 of the PTRS form. The comment code precedes the inspector's narrative comment about the specific evaluation or observation. A complete list of the PTRS comment codes is in the PTRS Comment Code Master List (see figure 6.1.2.2). A thorough discussion

of the use and application of PTRS comment codes is in paragraphs 33 and 35 of this section. This method of data collection, organization, and data input provides for exceptional information analysis and reporting capabilities.

NOTE: It must be clearly understood that PTRS comment codes are not related to or derived from the PTRS activity codes. The PTRS activity codes (formerly WPMS activity codes) are used to classify the type of job function conducted; for example "1624" is the activity code for an en route inspection. The PTRS comment codes, however, are used to classify comments about particular items observed or evaluated during a work activity and are made distinct by an alpha/numeric codification.

PRIMARY AREAS

A Air Carrier Operations
 B General Aviation Operations
 C ATC/Air Space
 D Airports
 E Air Agencies
 F Air Carrier Airworthiness
 G General Aviation Airworthiness
 H Aircraft
 J Crewmembers

KEY WORD LISTINGS100 Personnel

101 Knowledge
 103 Ability/Proficiency
 105 Qualifications/Currency
 107 Staffing
 109 Certificates/Ratings
 111 Briefings
 113 Rosters
 199 Other/Remarks

200 Manuals

201 Content/Information
 203 Currency
 205 Revision/System
 207 Distribution
 209 Availability
 299 Other/Remarks

300 Records/Reports

301 Disposition/Retention
 303 Procedures
 305 Personnel
 307 Content/Information
 309 Currency
 311 Availability
 313 A/C Discrepancies
 315 Inspections
 317 Major Repairs/Alterations
 319 Return To Service
 399 Other/Remarks

400 Training

401 Program
 403 Curriculum
 405 Aids/Devices
 407 Testing
 409 Records
 411 Facility
 413 Instructors
 499 Other/Remarks

500 Facilities/
Equipment/Surface

501 Adequacy
 503 Environmental
 505 Lighting
 507 Snow & Ice Control
 509 Runways
 511 Taxiways
 513 Sterile Area
 515 Ramp/Gate Area
 517 Vehicles/Other Equipment
 519 Obstruction
 521 Construction
 523 Contamination/F.O.D.
 525 Markings
 527 Signs
 529 Approach Aids
 531 Navigational Aids
 599 Other/Remarks

600 Conformance

601 Crew Complement
 603 Procedures
 605 Checklist
 607 MEL/CDL
 609 Approved Program
 611 Airworthiness Directives
 613 Weight and Balance
 615 Analysis and Surveillance
 617 Regulations
 619 Security
 621 Operations Specifications
 623 Sterile Cockpit
 625 A/C Limitations
 627 Carry on Bags
 629 Cabin Safety
 631 Company Directives
 633 ATC Clearances

635 Public Safety
 637 Passenger Handling
 639 Flight & Duty Time
 641 Hazardous Material
 643 Waivers/Authorizations
 699 Other/Remarks

700 Operations

701 ATC/Clearance
 703 ATIS
 705 SAWRS/AWOS
 707 SID's/STARS
 709 SIAP's
 711 Procedures
 719 Other/Remarks

FLIGHT CONDUCT

721 Preflight
 723 Predeparture
 725 Taxi/Takeoff
 727 Climb
 729 Cruise
 731 Descent
 733 Approach
 735 Landing/Taxi
 737 Crew Coordination
 739 Vigilance
 741 Flight Navigation
 743 Marshalling
 749 Other/Remarks

FLIGHT CONTROL

751 Inflight Comm
 753 Ground Comm
 755 Land Based Comm
 757 Weather
 759 Flight Information
 761 Flight Tracking
 763 Flight Planning
 765 Dispatch/Flight Release
 767 A/C Loading
 779 Other/Remarks

KEYPERSONNELPROGRAMS

781 Check Airmen
 783 Designees
 785 Dispatchers/Flight Followers
 799 Other/Remarks

800 Maintenance

801 Procedures/Methods/Systems
 802 Inspection Systems
 803 Programs
 804 Logbooks
 805 Carryovers
 806 Agency Certificate/Ratings
 807 Taxi/Towing
 808 Fueling
 809 Required Placards
 810 Servicing
 811 Standard Practices
 812 Deicing
 813 Scheduled
 814 Unscheduled
 815 Parts/Material
 816 Equipment/Tools
 819 Other/Remarks

AIRCRAFT ATA CODES

821 Air Conditioning
 822 Auto Flight
 823 Communications
 824 Electrical Power
 825 Equipment/Furnishing
 826 Fire Protection
 827 Flight Controls
 828 Fuel
 829 Hydraulic Power
 830 Ice/Rain Protection
 831 Ind/Recording Sys
 832 Landing Gear
 833 Lights
 834 Navigation
 835 Oxygen
 836 Pneumatic
 837 Vacuum/Pressure
 838 Water/Waste
 839 EE Panels/Component
 849 APU
 851 Structures
 852 Doors
 853 Fuselage
 854 Nacelles/Pylons
 855 Stabilizers
 856 Windows
 857 Wings
 861 Propellers
 865 Rotors

871 Power Package
 872 Engine
 873 Engine Fuel
 874 Ignition
 875 Bleed Air
 876 Engine Controls
 877 Engine Indicating
 878 Engine Exhaust
 879 Engine Oil
 880 Starting
 881 Turbine (Recip)
 882 Water Inj.
 883 Gear Box

KEYPERSONNELPROGRAMS

890 Designees
 891 Inspection Authorization
 (I.A.)
 892 Repairmen
 899 Other/Remarks

900 Management

901 Organizational Structure
 903 Communications
 905 Effectiveness
 907 Coordination
 909 Authority
 911 Info Dissemination
 913 Qualifications
 919 Other/Remarks

950 Administration

951 UTR Forms
 953 Key Word Listing
 955 Job Aids
 957 Instructions
 959 Handbook Material
 961 Other Directives
 963 Inspector Training
 965 FAA Forms
 967 Advisory Circulars
 999 Other/Remarks

C. *Job Aids.* The third component of PTRS consists of those job aids specifically designed for various inspector job functions and activities. Job aids provide general guidance on what types of practices, procedures, or items should be evaluated during an inspection or other job function. When applicable, job aids include the specific PTRS code (from the PTRS Comment Code Master List) the inspector can use when completing the PTRS Data Sheet (formal report of the inspection).

D. *Standard and Ad Hoc Reports.* The fourth component of PTRS consists of the various types of reports that the system is capable of generating. There are several options available to the inspector when selecting the type and scope of information desired from the database. This flexibility permits generation of reports in a standard format or in a completely ad hoc format.

33. USING THE PTRS COMMENT CODES. When completing the PTRS Data Sheet, it is extremely important that inspectors use the PTRS comment codes properly. To establish a credible and usable database, it is essential that inspector comments be consistently and accurately coded. Inspectors must carefully select the appropriate comment code for each comment recorded on the PTRS Data Sheet. The codes are derived in the following two-step process:

A. The first step is to identify the pertinent "primary area." There are nine primary areas, each designated by a capital letter, A through J. This is the alpha character of the comment code in section 4 on the PTRS Data Sheet. Primary areas are used to categorize the comments or remarks from an inspection or other job function as follows:

| <u>PRIMARY AREA</u> | <u>PRIMARY AREA CODES</u> |
|----------------------------------|---------------------------|
| • Air Carrier Operations | A |
| • General Aviation Operations | B |
| • ATC/Airspace | C |
| • Airports | D |
| • Air Agencies | E |
| • Air Carrier Airworthiness | F |
| • General Aviation Airworthiness | G |
| • Aircraft | H |
| • Crewmembers | J |

NOTE: The letter "I" is not included as a primary area alpha character because it can be confused with the numeric character "1".

B. The second step in deriving the correct PTRS

comment code is to select the appropriate element of information from the key word list (see figure 6.1.2.2., PTRS Comment Code Master List). The key word list permits a more detailed breakdown of the primary areas into various elements of information. For example, "manuals" (200) in the key word list is broken down as follows:

200 - MANUALS
 201 - Content/Information
 203 - Currency
 205 - Revision/System
 207 - Distribution
 209 - Availability
 299 - Other/Remarks

NOTE: In this example "manuals (200)" is a header for a category of key words. The number 200 cannot be used to clarify a comment or to be as part of a comment code.

C. Numeric-coded elements of information from the key word list are combined with alpha codes for the applicable primary area to properly identify the specific item the inspector is commenting upon. For example, if the comment concerns the content of an air carrier operations manual, the PTRS comment code that should be entered on the PTRS Data Sheet is "A201." If the comment concerns the distribution of the air carrier operations manual, the code should be "A207." A comment concerning information in an airport operations manual should be coded "D201." If the comment is about the distribution of an airport operations manual, the code should be "D207."

35. SELECTION OF APPROPRIATE PRIMARY AREA AND KEY WORD LIST CODES. It is essential that inspectors select the appropriate primary area and combine it with the appropriate key word list code to maintain an accurate and useful database. If appropriate selections are made, the database can be effectively used to identify deficiencies and trends and to provide other types of analysis functions for the user. To assist inspectors in selecting the proper codes, the Job Aid Disk (JAD) contains several different types of job aids for various types of inspector activities. The job aids for inspections contain lists of items which serve as "reminders" and also provide guidance on the specific areas that should be observed or evaluated during a particular type of inspection. In most cases, the list of items in a job aid includes the specific PTRS comment code that should be used when completing the PTRS Data Sheet. The following descriptions of primary areas include examples of how elements of

information from the key word list are combined to generate appropriate PTRS comment codes:

A. Air Carrier Operations - "A." The primary area "air carrier operations" is used to code comments pertaining to the operational areas (as opposed to the airworthiness areas) of air carrier activities conducted under Parts 121 and 135 (including activities of an applicant for a certificate to conduct those types of operations). "A" is also used for coding comments pertaining to the operational areas of Part 129 operators. This primary area must not be used for Part 125 operations. This code is generally used by operations inspectors, however, airworthiness inspectors should use the "A" primary area code if their comment relates to an operational matter. The following example illustrates the use of the "A" primary area code. An inspector performs a line/station facility inspection (PTRS activity code 1617) on a Part 135 commuter operator. During the inspection, the inspector determines that the operator's manual (which is maintained by the line/station facility) does not contain the last two revisions. The primary area code to be used in such a case would be "A" (air carrier operations) and the key word element used would be "203" (manuals, currency). The resulting PTRS comment code for this type of comment would be "A203."

B. General Aviation Operations - "B." The primary area "general aviation operations" is used to code comments pertaining to operational areas, methods, or procedures that are associated with general aviation (operations other than air carrier operations). The "B" primary area code encompasses, but is not limited to, comments about operations conducted under Parts 91, 101, 103, 105, 125, 133, and 137. This primary area code relates to operational aspects that are generally considered to be in the area of general aviation. The following example illustrates the use of the "B" primary area code. An inspector monitors an airshow (PTRS activity code 1686) and observes one of the acrobatic performers executing a maneuver contrary to the provisions of the airshow waiver. The primary area code to be used in such a case would be "B" (general aviation operations) and the key word element used would be "643" (conformance, waivers/authorizations). The resulting PTRS comment code for this type of comment would be "B643."

C. ATC/Airspace - "C." The primary area "ATC/airspace" is used to code comments pertaining to such items as towers, TRACON's, FSS's, Air Route Traffic Control Centers, and any related air traffic or airspace procedures, activities, or facilities. The

following example illustrates the use of the "C" primary area code. An inspector conducts a cockpit en route inspection (PTRS activity code 1624) and observes that the "ATIS" information for a specific airport was broadcast so rapidly that the crewmember had to listen repeatedly for understanding. The primary area code to be used in such a case would be "C" (ATC/airspace) and the key word element used would be "703" (ATIS). The resulting PTRS comment code for this type of comment would be "C703."

NOTE: Inspectors are not specifically assigned to conduct work activities or inspections in connection with ATC/airspace facilities. Inspectors are, however, encouraged to comment on their observations of these facilities and related ATC/airspace procedures or activities.

D. Airports - "D." The primary area "airports" is used to code comments pertaining to such items as runways, taxiways, ramp areas, crash/fire/rescue equipment, snow removal, security procedures, and construction areas. Comments concerning airports may result from various types of work activities such as ramp inspections or en route inspections. The following example illustrates the use of the "D" primary area code. An inspector conducts a ramp inspection (PTRS activity code 1622) and observes large cracks and holes in an adjacent taxiway. The primary area code to be used in this case would be "D" (airports) and the key word element used would be "511" (taxiway). The resulting PTRS comment code for this type of comment would be "D511."

E. Air Agencies - "E." The primary area "air agencies" is used to code comments pertaining to various aspects of air agencies such as pilot schools (Part 141), repair stations (Part 145), aviation maintenance technician schools (Part 147), and parachute lofts (Part 149). Many air carriers have air agency certificates in addition to operating certificates. For example, some air carriers are certificated to conduct training under Part 141 (pilot schools) and accordingly administer instruction in the same aircraft simulators used in their Part 121 or Part 135 approved training programs. The regulatory requirements of Part 141, however, must still be met for the operator to retain the air agency (pilot school) certificate. In such cases, the "E" primary area code should be used when a comment relates to the air agency (Part 141). The following example illustrates the use of the "E" primary area code. The recordkeeping requirements of FAR 141.101 is an inspection area that should be evaluated during an air agency facility inspection (PTRS activity code 1640). During such an inspection, the inspector determines that student records are not maintained for 1 year after

graduation. The primary area code to be used in this case would be "E" (air agencies) and the key word element to be used would be "301" (records disposition/retention). The resulting PTRS comment code for this type of comment would be "E301."

F. Air Carrier Airworthiness - "F." The primary area "air carrier airworthiness" is used to code comments pertaining to the airworthiness areas (as opposed to the operational areas) of air carrier activities conducted under Parts 121 and 135 (including activities of an applicant for a certificate to conduct those types of operations). "F" is also used for coding comments pertaining to the airworthiness areas for Part 129 operators. This primary area must not be used for airworthiness areas relating to Part 125 operations. This primary area code is generally used by airworthiness inspectors, however, operations inspectors should use the "F" primary area code if their comment relates to an airworthiness matter. The following example illustrates the use of the "F" primary area code. An inspector conducts a spot inspection (PTRS activity code 3628) and determines that the operator's mechanics are using an inappropriate procedure for repairing an aircraft. The primary area code to be used in this case would be "F" (air carrier airworthiness) and the key word element used would be "801" (maintenance, procedures/methods/systems). The resulting PTRS comment code for this type of comment would be "F801."

G. General Aviation Airworthiness - "G." The primary area "general aviation airworthiness" is used to code comments pertaining to the airworthiness requirements, programs, procedures, and functions of general aviation airworthiness activities. The "G" primary area code encompasses, but is not limited to, comments about activities involving general aviation airworthiness areas conducted under Parts 91, 101, 103, 105, 125, 133, and 137. The following example illustrates the use of the "G" primary area comment code. An inspector conducts a ramp inspection (PTRS activity code 3681) and, while examining the aircraft's logbook, determines that work was accomplished on the aircraft by someone who was improperly certificated to perform that specific activity. The primary area code to be used in this case would be "G" (general aviation airworthiness) and the key word element used would be "109" (personnel certificates/ratings). The resulting PTRS comment code for this type of comment would be "G109." In this example, since the comment concerned the person actually performing the work, the key word element under "personnel" was used.

H. Aircraft - "H." The primary area "aircraft" is used to code comments pertaining to such items as aircraft condition, aircraft servicing, and scheduled or unscheduled aircraft maintenance. The elements of information used within this primary area should usually align with the ATA aircraft codes. This primary area is used to code comments about the condition of an aircraft and its systems during any type of work activity conducted by both operations and airworthiness inspectors. The following example illustrates the use of the "H" primary area code. An inspector conducts a ramp inspection (PTRS activity code 1622) on a Part 135 operator's aircraft and discovers that the cargo-loading door has several dents and a cracked hinge. The primary area code to be used in this case would be "H" (aircraft) and the key word element used would be "852" (aircraft ATA codes, doors). The resulting PTRS comment code for this type of comment would be "H852."

I. Crewmembers - "J." The primary area "crewmembers" is used to code comments pertaining to the evaluation, inspection, or observation of anyone authorized to perform duties in an aircraft during flight. This includes all pilots, flight engineers, flight attendants, and navigators, regardless of whether they were performing inflight duties at the time of observation. This primary area also encompasses such items as crewmember proficiency, records, and manuals. Check airmen and examiners are considered crewmembers since they are in the broad category of "...any person authorized to perform duties in an aircraft during flight." The following example illustrates the use of the "J" primary code. An inspector conducts an en route inspection (PTRS activity code 1624) and observes that, during the area departure (while below 10,000 feet MSL) the PIC exceeded 250 knots. The primary area code to be used in this case would be "J" (crewmembers) and the key word element used would be "727" (climb). The resulting PTRS comment code for this type of comment would be "J727."

37. DETERMINING THE ACTUAL ISSUE OF A COMMENT. Before recording a comment, inspectors should determine the actual issue they want to convey. It is helpful before writing the comment to ask the question, "What is the actual issue or what is the information that should be conveyed by the comment?" Usually it is better to write the comment before selecting the PTRS comment code. Sometimes, however, selecting a comment code before writing the comment may help to identify the actual issue and make it easier to write a clear, concise comment. When selecting an appropriate PTRS comment code, inspectors must be careful to select a code which focuses on the actual issue or information intended to be conveyed by the narrative comment. The following example of an

inspector's narrative comment is used to illustrate the selection of an appropriate comment code and why the

selection of other codes would be inappropriate.

| SECTION IV — COMMENTS (unlimited) | | |
|-----------------------------------|---------------|--|
| PTRS CODES | | |
| Primary/ Key | Opin. UPIE | Comments (unlimited length) |
| A711 | U | PIC INITIATED BEFORE LONG CHECKLIST AT 700' AGL ON CLT RWY 36L ILS. EXISTING WX 300' AND 2 SM. THE APPROVED PROCEDURE IN FLIGHT MANUAL PERMITS LOWERING OF LONG GEAR ON ILS AS LOW AS 500'. THIS IS CONTRARY TO STABILIZED APPROACH CONCEPT. PIC MAINTAINED GOOD FLT PATH CONTROL BUT BEFORE LONG CHECKLIST NOT COMPLETED UNTIL 200' AGL. THE PROCEDURE SHOULD BE CHANGED TO BE CONSISTENT WITH STABILIZED APPROACH CONCEPT FOR PRECISION APPROACHES. |
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Appropriate Comment Code. In this example, it is the inspector's opinion that there is a fundamental problem with the approved procedure described in the company's flight manual. This inspector believes the procedure is deficient and inconsistent with safe operating practices. Although the PIC may not have used good judgment in delaying the lowering of the landing gear, the inspector correctly identified the actual issue to be a deficiency in an approved procedure. In this case, the inspector correctly selected an appropriate PTRS comment code of A711 (air carrier operations/procedures, see figure 6.1.2.2) and recorded his opinion that the procedure is unacceptable.

Inappropriate Comment Code. In the above example the inspector could have selected a PTRS comment code of J733 (crewmember/approach). This code, coupled with the inspector's opinion that it was unacceptable ("U"), would convey that the PIC made an unacceptable

approach. The PIC, however, conducted the approach in accordance with an approved procedure and was previously trained and checked in the use of that procedure. The selection of a comment code of J733 would be incorrect because it does not identify the actual issue.

Inappropriate Comment Code. Another inappropriate comment code that could be selected for this example would be J603 (crewmember/conformance with a procedure). The element of information code "603" is procedures. However, it is listed under the title of "conformance" and when coupled with an inspector opinion of unacceptable (U) or potential (P) is intended to convey nonconformance with a procedure. In this example the crewmember conformed to an approved procedure, therefore, the "J" (for crewmember) and "603" (for conformance with a procedure) does not convey the actual issue which concerns a faulty procedure used by the operator.

39. INSPECTOR OPINION CODES ("U","P","I","E"). Section 1 of the PTRS Data Sheet has a space for the inspector to record the results or status of a work activity (including inspections) by circling the appropriate code (A, E, F, I, S, T, X). These results or status codes must not be confused with the inspector opinion codes (U, P, I, E) which are recorded in section 4 on the PTRS Data Sheet. The inspector opinion codes in section 4 are designed to provide inspectors with more flexibility to express their opinions about evaluations or observations. The inspector opinion codes relate only to a particular narrative comment recorded in section 4. Each comment recorded in section 4 should be accompanied with an inspector opinion code. Section 4 provides a space for inspectors to record their opinions in the form of the codes "U", "P", "I", "E." It is often difficult to classify an observation or evaluation as simply "satisfactory" or "unsatisfactory." Opinion codes provide inspectors with the latitude to express an opinion that an evaluation or observation indicates a potential problem or that the recorded comment is simply informational in nature. Inspectors should use the opinion codes to express an opinion that a particular person, item, or area exceeds recognized standards. The opinion codes permit inspectors to record information and express their opinions with more detail about their observations or evaluations.

A. Unacceptable. "U" (unacceptable) means that, in the inspector's opinion, a person, item, or subject area was not in compliance with either regulations or safe operating practices, or was either inadequate or unsatisfactory. The recording of an "unacceptable" inspector opinion code in section 4 on the PTRS Data Sheet does not directly relate to the results code recorded in section 1. Often an inspector may need to express an opinion that a person, item, or subject area observed or evaluated during a work activity or inspection was unacceptable, but still may find that the overall results of the particular work activity was satisfactory "S". The example given in paragraph 37 illustrates a situation in which the inspector opinion code for a particular comment could be unacceptable but the overall results of the work activity (the inspection) could be satisfactory. This type of situation is entirely acceptable in that the inspector opinion codes in section 4 are used to classify the comments recorded by the inspector for the purpose of information processing and analysis. In addition, a particular item or subject area may be satisfactory under current standards, however, in the inspector's opinion, that item or subject area may still be unacceptable. If a sufficient number of unacceptable opinions are recorded, justification can be established to support a revision to the

standards. If an inspector is able to correct a situation or deficiency during the work activity which was unacceptable, the inspector should still record an "unacceptable" opinion code. The "unacceptable" opinion code provides information for future analysis and trend identification. In this case, however, the inspector's comment should include that corrective action was taken.

B. Potential. "P" (potential) means that, in the inspector's opinion, there was potential for a person, item, or subject area to be in noncompliance with either the regulations or safe operating practices, or to be either inadequate or unsatisfactory. The "potential" opinion code indicates the possibility that a problem exists or may exist. This code is useful for the identification of trends that could lead to more serious problems. The code also provides inspectors with a way to classify comments traditionally known as "grey areas." Inspectors should use this opinion code when they become aware of situations or procedures which are technically in compliance with regulations but which from a practical viewpoint are poorly planned and/or executed, and therefore could have caused noncompliance with a regulation or safe operating practice. In these situations the "potential" opinion code along with an appropriate narrative comment can be used to indicate that noncompliance could have occurred, had the inspector not intervened. For example, an inspector had to remind a crewmember to fasten the shoulder harness before takeoff. Without this reminder the potential for noncompliance with a regulation existed. Crewmembers and other company personnel, in the presence of an FAA inspector, sometimes react or perform differently than they would during routine operations when an inspector is not present. This different reaction or performance becomes quite apparent to inspectors for various reasons. In such a case, the "potential" opinion code can be used to indicate that (in the opinion of the inspector) crewmembers or other personnel may be using different standards when an inspector is not present. Another example of the definition of "potential" opinion code can be found in the distinction between "potential" opinion code and "unacceptable" opinion code. The "unacceptable" opinion code would be used when an inspector wants to convey the belief that an actual problem exists. The "potential" opinion code, however, would be used to classify a comment when an inspector wants to convey the belief that a potential problem exists or that a situation could develop into a problem if remedial action is not taken. The "potential" opinion code for a particular comment does not directly relate to the overall results code of the work activity (or inspection) recorded in section 1 on the PTRS Data Sheet.

C. Information. "I" (information) means that the

inspector does not have an explicit opinion about the information being conveyed in the accompanying comment. There are many reasons why an inspector may not be able to form an opinion about the information being conveyed in a recorded comment. An inspector may not have access to the necessary manuals or documents to determine whether a person, item, or subject area observed was in compliance with a regulation, a published procedure, or a safe operating practice. The "information" code provides a way to convey different kinds of information and comments to other persons such as POI's who are able to review the comments and form opinions about the information and take action, if appropriate. A typical example of the use of the "I" code is for an inspector to record the last revision date of a manual. The inspector may not be aware of what the last revision date should be but when the information is reviewed by the POI, the POI can determine the status of the operator's manual revision and dissemination system. Another example of the use of the "I" code would be for the inspector to record the type of instrument approach conducted and the minimums used by the PIC. In this example, the POI upon receiving the information can determine whether or not the crew was properly trained for the type of approach and if the PIC used the proper minimums. The primary purpose of this comment section on the PTRS Data Sheet is to effectively convey information to be evaluated for identifying deficiencies as well as both positive and negative trends. Inspectors who are unable to form an opinion about an observation because of the lack of more explicit information, should use the "I" code to classify these types of comments for subsequent evaluation.

D. *Exceeds*. "E" (exceeds) means that, in the inspector's opinion, a person, item, or subject area which was observed or evaluated, exceeded recognized standards or clearly complied with regulations and/or safe operating practices. One of the primary uses of the comment section on the PTRS Data Sheet is to identify trends. Information about a positive trend is useful in determining the overall compliance status of an operator. The "E" opinion code is especially useful and should be used to identify positive responses to a previously-taken corrective action. If a particular area of interest has a significant number of associated "E" opinion codes, it can be analyzed to determine the cause of the favorable comments and, if appropriate, substantiate the need to

revise programs or procedures in other areas of interest. Inspectors should comment on the positive results of an observation or evaluation as this type of information is valuable feedback on a person's or an operator's performance. An example of the use of the "E" opinion code is the recording of positive comments about the proficiency of crewmembers who have just completed a training curriculum. Such information indicates to the POI that the training provided by the operator is effective.

41. INSPECTOR'S NARRATIVE COMMENT. An inspector's narrative comment of observations and evaluations as recorded in section 4 of the PTRS Data Sheet is the most important part of the overall work activity report. The comment and opinion codes provide for the rapid computer processing of information and for the structured retrieval of information in a format that can be more readily analyzed. The narrative comments, however, are the only means of accurately recording what the inspector has actually observed. The recording of these comments is the final phase of a work activity. For inspection activities, it is a critical phase in the overall scheme of data collection and processing. An inspection report must include factual and meaningful comments or it has little value other than to be a record that an inspection was accomplished. Particular attention should be given to the identification of who or what was observed or evaluated, what specific function was being accomplished, when and where it occurred, and how and why it happened, as appropriate. Recorded comments should be as brief and concise as possible. It is important to keep comments brief to save time on data entry. Inspectors should use abbreviations and contractions when it is known that the contractions will be understood by aviation-oriented personnel. Essential information (such as dates, names of personnel, aircraft make/model/series, registrations numbers, part numbers, and flight numbers) that is recorded in sections 1, 2, or 3 of the PTRS Data Sheet should not be repeated in the comments recorded in section 4 on the form. Inspectors should not, however, exclude essential information to make a comment brief, since there is no limit to the number of words that can be used to record a comment. Comments should fully describe and support the inspector's observations, evaluations, and opinions. Figure 6.1.2.3 includes examples of one method, but not the only method, of recording comments and appropriate comment and opinion codes.

FIGURE 6.1.2.3
EXAMPLES OF COMMENTS

| PROGRAM TRACKING AND REPORTING SUBSYSTEM DATA SHEET | | | | |
|--|-------------------------------|---------------------------------|-------------------------|-----------------------------------|
| SECTION I | | Record ID: _____ | | SECTION IV — COMMENTS (unlimited) |
| Inspector Name Code: <u>JHF</u> | | | | |
| Activity Number: <u>1356</u> | FAR: <u>121</u> | NPG: | PTRS CODES | |
| Status: (COP) <u>C</u> | Callup Date: | Start Date: | Primary/Key | Opn UPIE |
| Results: (ACEFISTX) <u>I</u> | Pass/Fail (P/F): | Completion Date: <u>9/30/89</u> | <u>J727</u> | <u>U</u> |
| Designator: <u>ABCA</u> | Airman Cert #: <u>7283567</u> | | | |
| Aircraft Reg #: <u>N 3214AB</u> | | | | |
| Make-Model-Series: <u>DOUG - 9 - 31</u> | | | | |
| Point of Departure: <u>LGA</u> | Point of Arrival: <u>IAD</u> | Flight #: <u>1246</u> | | |
| Investigation # (12): | | | | |
| Tracking: | | | | |
| Miscellaneous: | | <u>C703</u> | <u>P</u> | |
| Numeric Misc: | | | | |
| Local Use: | | | | |
| Regional Use: | | | | |
| National Use: | | <u>J103</u> | <u>I</u> | |
| Activity Time: | | | | |
| Travel Time: | | <u>J633</u> | <u>P</u> | |
| Triggers: (Activity #/ INVS/ REXM/ R# (repeat)) | | | | |
| SECTION II — PERSONNEL (unlimited) | | | | |
| Personnel Name: | Position: | Base: | Remarks (35 Characters) | |
| <u>CORBET JAMES J.</u> | <u>SIC</u> | <u>LGA</u> | <u>10E FOR SIC</u> | |
| SECTION III — EQUIPMENT (unlimited) | | | | |
| Manufacturer: | Model: | Serial #: | Remarks (23 Characters) | |
| Date: <u>10/5/89</u> Originator: <u>JHF</u> District Office: <u>EAIS</u> | | | | |
| Inspector Signature: _____ Supervisor Initials: _____ | | | | |

4.3. SUPERVISOR/MANAGEMENT RESPONSIBILITIES. The effectiveness of the PTRS depends on the effective and responsible management of the system. Supervisors and managers must ensure that inspectors understand the system and the significance of providing factual and meaningful comments and opinions. It is important that inspectors be permitted to freely express their comments and opinions. Supervisors and managers must promote and foster a positive working atmosphere to ensure that inspector comments are as objective and accurate as possible. Supervisors and

managers are encouraged to carefully review PTRS Data Sheets to ensure the accuracy of PTRS-coded entries and that the narrative comments support inspector opinions, findings, and recommendations. Supervisors and managers may change the PTRS activity "results" code (for example from "S" to "E" or "F"). Supervisors and managers, however, should not change an inspector's opinion code ("U","P","I","E"), or require the inspector to change the opinion code unless the inspector agrees that the entry was entered in error.

44. - 50. RESERVED

[PAGES 6-28 THROUGH 6-34 RESERVED]

FIGURE 6.1.2.3
EXAMPLES OF COMMENTS

| PROGRAM TRACKING AND REPORTING SUBSYSTEM DATA SHEET | | | | |
|---|-------------------------------|---------------------------------|------------------------------|---|
| SECTION I | | Record ID: _____ | | SECTION IV — COMMENTS (unlimited) |
| Inspector Name Code: <u>JHF</u> | | | | |
| Activity Number: <u>1356</u> | FAR: <u>121</u> | NPG: | PTRS CODES | |
| Status: (COP) <u>C</u> | Callup Date: | Start Date: | Primary/Key | Opn UPIE |
| Results: (ACEFISTX) <u>I</u> | Pass/Fail (P/F): | Completion Date: <u>9/30/89</u> | <u>J727</u> | <u>U</u> |
| Designator: <u>ABCA</u> | Airman Cert #: <u>7283567</u> | | | |
| Airman Name: <u>SULLIVAN JOHN L.</u> | | | | |
| Aircraft Reg #: <u>N 3214AB</u> | | | | |
| Make-Model-Series: <u>DOUG - 9 - 31</u> | | | | |
| Point of Departure: <u>LGA</u> | Point of Arrival: <u>IAD</u> | Flight #: <u>1246</u> | | |
| Investigation # (12): | | | | |
| Tracking: | | | | |
| Miscellaneous: | | <u>C703</u> | <u>P</u> | <u>IAD ATIS "ZULU" 1855Z TOO FAST. CREW HAD TO</u> |
| Numeric Misc: | | | | <u>LISTEN 3 TIMES TO GET ALL INFO. RECOMMEND IAD</u> |
| Local Use: | | | | <u>APPROACH CONTROL READVISED.</u> |
| Regional Use: | | | | |
| National Use: | | <u>J103</u> | <u>I</u> | <u>PIC FLIGHT MANUAL REVISION AIRWORTHY 22, 9/15/89</u> |
| Activity Time: | | | | |
| Travel Time: | | <u>J633</u> | <u>P</u> | <u>FLT CLEARED TO CROSS FORVOR AT 10,000' AND</u> |
| Triggers: (Activity #/ INVS/ REXM/ R# (repeat)) | | | | <u>250K ON DESCENT TO IAD ADPT. SIC DIDN'T START</u> |
| | | | | <u>DESCENT FROM FL 260 UNTIL 10NM E. OF FORVOR. FROM</u> |
| | | | | <u>THIS POSITION SIC COULD NOT HAVE COMPARED WITH ATC</u> |
| | | | | <u>RESTRICTIONS. CHECK AIRMAN INTERFERED BY REQUESTING AN</u> |
| | | | | <u>RECEIVING DEWILANCE. SIC COMPLETED FLT SATISFACTORY</u> |
| SECTION II — PERSONNEL (unlimited) | | | | |
| Personnel Name: | Position: | Base: | Remarks (35 Characters) | |
| <u>CORBET JAMES J.</u> | <u>SIC</u> | <u>LGA</u> | <u>10E FOR SIC</u> | |
| | | | | |
| | | | | |
| SECTION III — EQUIPMENT (unlimited) | | | | |
| Manufacturer: | Model: | Serial #: | Remarks (23 Characters) | |
| | | | | |
| | | | | |
| | | | | |
| Date: <u>10/5/89</u> | | Originator: <u>JHF</u> | District Office: <u>EAIS</u> | |
| Inspector Signature: | | Supervisor Initials: | | |

4.3. SUPERVISOR/MANAGEMENT RESPONSIBILITIES. The effectiveness of the PTRS depends on the effective and responsible management of the system. Supervisors and managers must ensure that inspectors understand the system and the significance of providing factual and meaningful comments and opinions. It is important that inspectors be permitted to freely express their comments and opinions. Supervisors and managers must promote and foster a positive working atmosphere to ensure that inspector comments are as objective and accurate as possible. Supervisors and

managers are encouraged to carefully review PTRS Data Sheets to ensure the accuracy of PTRS-coded entries and that the narrative comments support inspector opinions, findings, and recommendations. Supervisors and managers may change the PTRS activity "results" code (for example from "S" to "E" or "F"). Supervisors and managers, however, should not change an inspector's opinion code ("U","P","I","E"), or require the inspector to change the opinion code unless the inspector agrees that the entry was entered in error.

44. - 50. RESERVED

[PAGES 6-28 THROUGH 6-34 RESERVED]

VOLUME 6. SURVEILLANCE

CHAPTER 2. SPECIFIC TYPES OF INSPECTIONS

SECTION 1. GENERAL INSPECTION PRACTICES AND PROCEDURES

101. GENERAL. This chapter contains information on both the objectives and characteristics of inspections. It contains direction and guidance on the planning and conduct of specific types of inspections in support of an overall surveillance program. This guidance applies to all aviation safety inspectors who conduct inspections of Part 121 or Part 135 operators.

103. OBJECTIVE OF AN INSPECTION. The primary objective of any inspection is to determine that a person, an item, or a certain segment of an operation associated with air transportation meets at least the same standards that were required for initial certification or approval by the FAA. For inspectors to make these determinations, inspections must be conducted in an orderly and standardized manner. To accomplish this, each type of inspection must have individual objectives and be conducted each time in generally the same manner, according to the direction and guidance in this handbook and with appropriate job aids.

105. CHARACTERISTICS OF AN INSPECTION. As discussed in volume 6, chapter 1, each type of inspection is a specific event (work activity) which has the following characteristics:

- A specific work activity title and PTRS activity code
- A definite beginning and a definite end
- Specific objectives to be met
- General procedures to be followed
- A report of findings

A. Each type of inspection is identified with a specific title. Also, each type of inspection is assigned a specific PTRS activity code for the purpose of computer automation and for reference in the planning and tracking of inspection activity.

B. Inspections have a definite beginning and end. They may be scheduled by an inspector for the

observation and evaluation of a specific activity, such as a proficiency check, or they may be scheduled for the evaluation of operator documents, manuals, or approved programs. A specific inspection activity may be initiated and completed in a short time or it may be initiated on one day and completed several days later with other types of work activity conducted during that time. In any case, an inspection begins when an inspector initiates the inspection task and ends when the inspector has completed the inspection report.

C. Inspections have general procedures that inspectors should follow for standardization purposes. These general procedures are outlined in the following sections of this chapter. In most cases, there is a specific job aid for each type of inspection which contains lists of specific items or areas which should be observed and evaluated, when applicable, during the inspection. Examples of these job aids are included in respective sections of this chapter.

D. The primary objective of any inspection is to determine that a person, item, or segment of an operation complies or continues to comply with regulations, safe operating practices, and other established standards. Each inspection type, however, has specific objectives, which are discussed in respective sections of this chapter.

E. An inspection is not complete until a report on the results of the inspection has been recorded. This report of inspection results is usually recorded on the PTRS Data Sheet (see volume 6, chapter 1, section 2). This inspection report is the key element of any inspection. Inspectors must be concise, factual, and objective in reporting inspection results.

107. CONDUCTING AN INSPECTION. Due to the complexity of the air transportation industry there are various types of inspections, each type with specific objectives. When deciding which type of inspection to conduct, inspectors should consider the objectives of each type of inspection and determine the type most appropriate and effective for a particular situation. An inspector's decision to conduct a particular type of inspection may be based on an isolated situation, such as a complaint or an incident, or on some other information that raises a

question about compliance with a regulation or safe operating practice. In most situations, however, the types of inspections that need to be conducted are determined by managers, supervisors, and POI's during the development of surveillance programs. These determinations are based on the analyses of previously collected surveillance data and other related information.

A. Preparing for an Inspection. Before conducting an inspection, inspectors should to the extent possible, familiarize themselves with an operator's systems, methods, and procedures. To obtain this familiarization, inspectors can review those sections of the operator's manuals pertinent to the type of inspection to be conducted. Additional familiarization can be obtained by an inspector questioning and discussing the operator's systems, methods and procedures with POI's and with other inspectors already acquainted with the operator. When possible, inspectors should become aware of any previous deficiencies or negative trends by reviewing previous surveillance data pertinent to the type of inspection to be conducted. Inspectors must be acquainted with the applicable direction and guidance in this handbook for the type of inspection to be conducted. Inspectors can review the appropriate job aid as a reminder of the areas to be evaluated.

B. Advance Notice of an Inspection. Most inspections will cause some disruptions to routine operations. Responsible operators engaged in air transportation understand the legal basis for FAA surveillance and are generally cooperative in responding to the needs of inspectors during the conduct of inspections. Operators are required to afford inspectors the opportunity to conduct inspections in a manner that effectively accomplishes the objectives of the inspections. Inspectors should, however, arrange their inspection activities so they will result in a minimum amount of disruption to routine operations. In general, it is appropriate and helpful to both the operator and inspectors to provide advance notice that an inspection is to be conducted. Advance notice should be given for inspections which take operator personnel away from their normal duties, such as records inspections. Such advance notice is usually unnecessary for those inspections which result in only a minimal involvement of operator personnel. Examples of inspections in which advance notice serves little purpose include ramp inspections.

C. Limiting the Scope of an Inspection. Each type of inspection has a set of items or areas that inspectors should observe and evaluate during the inspection. Sufficient time should be allotted for effective evaluation

of all the items or areas. The circumstances under which inspections are conducted however, vary considerably. Often inspectors will not be able to evaluate all the specified items or areas. The more important consideration is to thoroughly and qualitatively evaluate those items or areas in which the inspector has the time and opportunity to observe. In some circumstances, it may be preferable for an inspector to limit the scope of a particular inspection type to ensure the quality of the inspection. When an inspection is limited in scope, the inspector should provide a comment on how it was limited, and indicate it by either recording the number and types of records or manuals evaluated, recording the general areas evaluated, or by recording the general areas not evaluated. In general, it is better to schedule sufficient time to evaluate all the items or areas specified for an inspection type. Inspections that are limited in scope, however, do serve a useful purpose and can still provide valuable information.

D. Inspector Conduct. The actions and conduct of an aviation safety inspector are subject to close scrutiny by the personnel they encounter during the performance of an inspection. Inspectors must conduct themselves as aviation professionals at all times when conducting inspections. When initiating an inspection, inspectors shall properly identify themselves and ensure that the appropriate operator personnel are fully aware of the type and purpose of the inspection being conducted. Inspectors shall wear name tags or other appropriate identification in plain view during the conduct of the inspections (see volume 9). When observing or evaluating operator personnel during the performance of their assigned duties, inspectors shall not intervene in a manner that could adversely hinder or preclude them from effectively performing their duties. If, however, an inspector observes a condition that is obviously unsafe or that could potentially become unsafe, the inspector shall immediately inform the appropriate operator personnel of the condition.

E. Concluding an Inspection. At the conclusion of an inspection, inspectors should usually debrief appropriate operator personnel of the inspection results. When appropriate to the type of inspection conducted, the debriefing should include a summary of the areas inspected and the inspector's opinion concerning the compliance status of each area. Persons, items, or areas that were found to meet or exceed standards should also be commented on during the debriefing. Post-inspection debriefing must include an explanation of any deficiencies that were found during the inspection. Appropriate operator personnel must be informed of any areas that will require some form of follow-up action. If it appears that a regulation has been violated, inspectors must inform

responsible operator personnel that an investigation into the apparent violation will be initiated. When an inspector is unable to debrief the appropriate operator employees on any deficiencies because those employees are not available, the inspector should indicate in the inspection report that the operator was not briefed on the deficiencies. Isolated types of deficiencies found during an inspection can often be corrected by operator personnel while the inspection is being conducted. Such deficiencies can be adequately resolved and closed out during the post-inspection debriefing. In these cases, however, inspectors should record information about the deficiency and how it was corrected on the inspection report because such information is useful for trend evaluations. The preparation of the inspection report is the final action that must be taken by inspectors to conclude an inspection. All reports on specific types of inspections shall be recorded on the PTRS Data Sheet (see volume 6, chapter 1, section 2).

109. GUIDANCE FOR THE CONDUCT OF SPECIFIC TYPES OF INSPECTIONS. Each section that follows in this chapter contains direction and guidance for the conduct of a specific type of inspection. When practical, the discussion in each section is organized in the following format:

- Objectives of the inspection type
- Inspection areas
- General practices and procedures
- Specific practices and procedures
- Applicable job aids

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CHAPTER 2. SPECIFIC TYPES OF INSPECTIONS

SECTION 2. RAMP INSPECTIONS

121. OBJECTIVES OF RAMP INSPECTIONS. The primary objective of a ramp inspection is to provide inspectors with the opportunity to evaluate an air carrier operation while the crewmembers and aircraft are on the ground. A ramp inspection is an effective method for evaluating an operator's ability to prepare both the aircraft and crew for a flight to be conducted. Also, when a ramp inspection is conducted after the completion of a flight, it is an effective method for determining whether the aircraft and crew were adequately prepared for the flight, as well as for evaluating the operator's postflight and/or turnaround procedures and crewmember and ground personnel compliance with these procedures. Ramp inspections allow inspectors to observe and evaluate the routine methods and procedures used by an operator's personnel during the period immediately before or after a flight, to determine compliance with regulations and safe operating practices.

123. RAMP INSPECTION AREAS. There are five general inspection areas that can be observed and evaluated during ramp inspections. These inspection areas are as follows:

- Crewmember
- Line station operations
- Aircraft
- Servicing and maintenance
- Ramp and gate condition and activity

A. The "crewmember" inspection area refers to the evaluation of crewmember preparation for flight and compliance with postflight procedures. This area includes evaluations of crewmember manuals and any required flight equipment, flightcrew flight planning, flightcrew airman and medical certificates, crewmember disposition of trip paperwork, and other items that relate to crewmember responsibilities.

B. The "line station operations" inspection area refers to the various methods and procedures used by the operator to support the flight, such as distribution of dispatch, flight release, and flight-locating paperwork; distribution of weather reports, PIREP's and other flight planning material; passenger handling; boarding procedures; and carry-on baggage screening.

C. The "aircraft" inspection area refers to the aircraft's general airworthiness, logbook entries, MEL compliance, carryovers, and required items of emergency and cabin safety equipment.

D. The "servicing and maintenance" inspection area applies to any ongoing maintenance and servicing, such as fueling, deicing, or catering. This area is usually evaluated in detail by airworthiness inspectors when performing their ramp inspections. Operations inspectors should, however, observe this area and comment on obvious deficiencies for airworthiness inspector follow-up.

E. The "ramp and gate condition and activity" inspection area refers to taxi and marshalling operations, ramp or parking area surfaces, any apparent contamination or debris, vehicle operations, and the condition and use of support equipment.

125. GENERAL RAMP INSPECTION PRACTICES AND PROCEDURES.

A. Ramp inspections may be conducted before a particular flight, at en route stops, or at the termination of a flight. A ramp inspection may be conducted any time an aircraft is at a gate or a fixed ramp location, provided the inspection is conducted when the crew and ground personnel are performing the necessary preparations for a flight or when they are performing postflight tasks and procedures.

B. The operator does not have to be given advance notice that a ramp inspection is going to be conducted. Inspectors must, however, conduct inspections in a manner that does not unnecessarily delay crewmembers and/or ground personnel in the performance of their duties. The

following areas of conduct should be observed by inspectors during ramp inspection activities:

- (1) Inspectors should not interrupt crew or ground personnel when they are performing a particular phase of their duties.
- (2) When inspection activities require inspectors to interact directly with the crew or ground personnel, the activities should be timed to be accomplished when the crew or ground personnel are waiting to begin another phase of their duties or after they have completed one phase of their duties and before they begin another phase.
- (3) Inspection activities must be timed so that they do not delay or interfere with passenger enplaning or deplaning.
- (4) Inspection activities should not adversely impede aircraft servicing or catering.

C. Because of the wide range of inspection areas involved, ramp inspections are usually limited in scope. There are many preparatory or postflight actions that occur simultaneously and one inspector cannot physically observe all of these actions for a particular flight. As a result, the inspector should vary the areas of emphasis for an inspection. For example, on one ramp inspection the inspector may decide to observe and evaluate the PIC accomplishing flight planning and the operator's methods for providing the flightcrew with appropriate flight planning support. On another ramp inspection, the inspector may decide to observe the SIC accomplish the aircraft exterior preflight and then evaluate the aircraft's interior equipment and furnishings. As an example of a ramp inspection conducted at the termination of a flight, the inspector may decide to inspect the aircraft's interior equipment, furnishings, and aircraft logbooks, and then evaluate the trip paperwork turned in by the crew. In this example, the inspector may not have an opportunity to interact directly with the crew, therefore the "crewmember" inspection area would not be accomplished. Inspectors should vary both the sequence and the emphasis of the inspection areas during a ramp inspection. Inspectors should describe in their reports how the inspection was limited in scope.

D. Inspectors should use the ramp inspection job aid when conducting ramp inspections. This job aid contains a listing of items ("reminders") that should be observed

and evaluated by the inspector during the inspection. The job aid also includes applicable PTRS comment codes to facilitate the writing of the inspection report. There may be items evaluated during a ramp inspection that are not listed on the job aid. In such cases, the PTRS comment code entitled "other" should be used for the appropriate inspection area. The job aid can be used to help describe how the inspection was limited in scope. The job aid can also be used to make notes during the inspection which can be transcribed later to the PTRS Data Sheet.

127. SPECIFIC RAMP INSPECTION PRACTICES AND PROCEDURES.

A. *Crewmember Inspection Area.* When an inspector makes direct contact with a crewmember, the inspector should provide an official but courteous introduction, offer appropriate identification for the crewmember to inspect, and inform the crewmember that a ramp inspection is being conducted. If the direct contact is with a flight crewmember, the inspector should request to see the crewmember's airman and medical certificates. The inspector should review the certificates to see that they meet the appropriate requirements for both the duty position and for the aircraft for the flight to be conducted or that was just terminated. When the direct contact is with flight crewmembers or flight attendants, the inspector should also request to examine the crewmember's professional equipment. Crewmember professional equipment includes any equipment that crewmembers are required to have according to regulation or operator policies, either on their person or that which will be available during the flight. Examples of professional equipment include aeronautical charts, appropriate operator manuals, and operable flashlights. Inspectors should determine whether the charts and manuals carried by crewmembers are current. The following is a list of other items and activities that, depending on the scope of the ramp inspection, should be observed and evaluated:

- Flightcrew flight-planning activities, such as review of weather, flight plans, anticipated takeoff weight and performance data, flight control requirements (dispatch, flight release, flight-locating, ATC flight plans)
- Flightcrew aircraft preflight activities, such as exterior walkaround, logbook reviews, and cockpit setup procedures, including stowage of flightcrew baggage and professional equipment
- Flight attendant inspection of cabin emergency equipment and cabin setup procedures, including

stowage of flight attendant baggage and professional equipment

- Flightcrew and flight attendant postflight logbook entries and proper use of MEL's and placards
- Completed trip paperwork and the appropriate disposition of such paperwork

B. *Line Station Operations Area.* This area of a ramp inspection usually involves a facility (or designated area of a facility) including related ground personnel, and is commonly referred to as "line station operations." Line station operations include a designated location where crewmembers go to review and pick up required flight paperwork or to deposit flight reports, to send or receive communications with the operator's flight control system, and to join up with other crewmembers assigned to the flight. Line station operations also includes gates and ramp areas where passengers and cargo are enplaned and deplaned. The following is a list of items and activities that, depending on the scope of the inspection, should be observed and evaluated in this inspection area:

- Preflight and postflight trip paperwork, such as load manifests, flight plans, weather reports and forecasts, NOTAM's, dispatch or flight release messages and operator bulletins
- Methods used by the operator to comply with MEL and CDL requirements, particularly the preflight information provided to the crew
- Adequacy of facility with respect to crewmember and ground personnel use for completing preflight and postflight responsibilities, including work areas and administrative support (such as forms, charts, and copy machines when required by company procedures)
- Usability and currency of operator manuals and aircraft performance information maintained at the line station operations area for crew and ground personnel use
- Company communication capabilities and procedures

- Passenger enplaning and deplaning including public protection procedures and carry-on baggage screening
- Cargo and baggage loading and stowage procedures and unloading procedures

C. *Aircraft Inspection Area.* Ramp inspections must include at least an examination of the aircraft's registration, airworthiness certificate, and maintenance logbook. Inspectors should plan their ramp inspection activities so that any inspection of the aircraft's interior equipment and furnishings would be conducted either before passengers are enplaned or after they are deplaned. The following is a list of items that should be observed in this inspection area:

- Aircraft registration and airworthiness certificates
- Aircraft and cabin logbooks (or equivalent) (open discrepancies, carryover items, and cabin equipment items needing repair or replacement)
- Appropriate placarding
- Fire extinguishers (correct types, numbers and locations; properly serviced, safetied, tagged, and stowed)
- Portable oxygen bottles (correct numbers and locations; properly serviced, tagged, and stowed; condition of mask, tubing, and connectors)
- Protective breathing equipment (properly located, stowed, and sealed)
- First aid kits and emergency medical kits (correct numbers and locations; properly sealed, tagged, and stowed)
- Megaphones (correct numbers and locations; in operable condition, and properly stowed)
- Crash ax (properly located and stowed)
- Passenger briefing cards (one at each seat position; appropriate to aircraft; required information including emergency exit operation, slides, oxygen use, seatbelt use, brace positions, flotation devices; appropriate pictorials for extended overwater operations, including

ditching exits, life preserver, and life or slideraft inflight location)

- Passenger seats (not blocking emergency exits; TSO label on flotation cushions; cushion intact; latching mechanism on tray tables; armrests have self-contained and removable ashtrays; seatbelts properly installed, operational, and not frayed or twisted)
- Passenger oxygen service units (closed and latched with no extended red service indicators or pins)
- Flight attendant stations (operable seat retraction and restraint systems; properly secured; harnesses not frayed or twisted; seat cushions intact; headrests in correct position; PA system and interphone)
- Galleys (latching mechanisms - primary and secondary; tiedowns; condition of restraints; padding; proper fit of cover and lining of trash receptacles; hot liquid restraint systems; accessibility and identification of circuit breakers and water shut-off valves; non-skid floor; girt bar corroded or blocked by debris; clean stationary cart tiedowns (mushrooms); galley carts in good condition and properly stowed; lower lobe galley emergency cabin floor exits passable and not blocked by carpeting, if applicable)
- Galley personnel lift, if applicable (no movement up or down with doors open; safety interlock system; proper operation of activation switches)
- Lavatories (smoke alarms; no-smoking placards; ashtrays; proper fit of cover and lining of trash receptacles; automatic fire extinguisher systems)
- Stowage compartments (weight restriction placards; restraints and latching mechanisms; compliance with stowage requirements; accessibility to emergency equipment; carry-on baggage provisions)
- Required placards and signs (seatbelt, flotation equipment placards at seats; emergency/safety equipment placards;

weight restriction placards; no-smoking/seatbelt signs; no-smoking placards; exit signs and placards, including door opening instructions)

- Emergency lighting system (operation independent of main system; floor proximity escape path system; controllability from cockpit)
- Exits (general condition; door seals; girt bars and brackets; handle mechanisms; signs; placards; slide or slideraft connections and pressure indications; lights and switches)
- Main landing gear viewing ports, if applicable (cleanliness and usability)

D. *Servicing and Maintenance Inspection Area.* The servicing and maintenance of the aircraft may be observed at any time during the ramp inspection. The following is a list of some areas that may be observed and evaluated in this inspection area:

- Fueling procedures (ground wires in place; fuelslip properly completed; fueler trained in the operator's specific procedures)
- Routine maintenance (qualifications of mechanics, repairmen or service agents; appropriate logbook entries)
- Deicing procedures (compliance with company procedures; proper glycol/water ratios and temperatures; avoidance of engine/APU inlets; removal of all snow and ice; trailing and leading edges free of snow and ice and covered completely with deicing fluid)
- Correct procedures used by service contractors (caterers; cleaners; lavatory and water servicing personnel; correct use of switches and controls)
- Vehicle operation near aircraft (general condition and proper servicing of vehicles and equipment)

E. *Ramp and Gate Condition and Activity Inspection Area.* During ramp inspections, inspectors should observe and evaluate the ramp and gate surface condition as well as any support activities being conducted during an inspection. Inspectors should observe vehicular operations on the ramp and around gate areas and other aircraft operations during marshalling, taxiing, or towing

operations. Inspectors should report any condition that appears to be unsafe or could potentially be unsafe. The following is a list of some items that should be observed and evaluated in this inspection area:

- Ramp, apron, and taxiway surfaces (general condition; cracks; holes; uneven surfaces)
- Contamination debris (FOD; fuel, oil, or hydraulic spills; snow and ice accumulations; taxi lines; gate markings; signs; signals)

- Construction (appropriate barriers; signs; markings; flags)
- Vehicular operations (conducted safely around aircraft and gate areas by qualified personnel)

129. RAMP INSPECTION JOB AID. Figure 6.2.2.1 is the Ramp Inspection Job Aid which is available on the district office Job Aid Disk.

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FIGURE 6.2.2.1
AIR CARRIER RAMP INSPECTION JOB AID

| PTRS ACTIVITY: 1622 DATE: | | AIR CARRIER | FLT NO. | A/C REG NO. | | MAKE | MOD/SERIES |
|---|-----|----------------------------------|---------|-------------|----|---------------------------------------|-------------------|
| PIC NAME: | | CERT # | BASE | FROM | TO | RESULTS | HB REF VI.2.2. |
| U = UNACCEPTABLE; P = POTENTIAL; I = INFORMATION; E = EXCEEDS | | | | | | | |
| CREWMEMBERS | | | | | | | |
| KNOWLEDGE | 101 | COMPANY DIRECTIVES | 631 | | | F/A STATION | 825 |
| QUAL/CURRENCY | 105 | * MEL Procedures | 607 | | | * Retracts | -- |
| CERT/RATINGS | 109 | * Adequacy of Facility | 501 | | | * Condition | -- |
| MANUAL AVAILABILITY | 209 | * Ground Comm | 753 | | | * P/A & Interphone | -- |
| MANUAL CURRENCY | 103 | * Flight Comm | 751 | | | GALLEYS | 825 |
| REQ. EQUIPMENT | -- | * Gate Agent | -- | | | * Latch Mechanisms | -- |
| CREW COMPLEMENT | 601 | Procedures | -- | | | * Restraints/Tie-downs/Covers | -- |
| PREFLIGHT | 721 | * Pax Handling | 637 | | | * Debris/Corrosion | -- |
| * Flight Plan | 763 | * Protection of The Public | 635 | | | LAVATORIES | 825 |
| * Weather Review | 757 | * Cargo/ Baggage Loading/Stowage | 767 | | | * Smoke Alarm | -- |
| * NOTAMS | 759 | * Security | 619 | | | * Signs/Lights | -- |
| * Fuel Reqmts | -- | Other Remarks | 733 | | | * Extinguisher | -- |
| * T/O Data | -- | | | | | STOWAGE AREAS | 825 |
| * Disp/Flt Rel | 767 | | | | | * Latch Mechanisms | -- |
| * A/C Preflight | -- | | | | | * Access to Equip. | -- |
| * Logbook Review | -- | | | | | EMERGENCY LIGHTING | 833 |
| * Cockpit Setup | -- | | | | | * Operable | -- |
| * Crew Baggage | -- | | | | | * Floor Systems | -- |
| * F/A Inspection Of Cabin Equip. | -- | | | | | EXITS | 852 |
| * Cabin Setup | -- | | | | | * Control/Seals | -- |
| * Pax Boarding | 637 | | | | | * Girt Bar and Brackets | -- |
| * Carry-on Baggage | 627 | | | | | * Signs/Symbols | -- |
| * Handicapped Pax | -- | | | | | * Rafts/Lanyards | -- |
| * Pushback/Pwrback | -- | | | | | MLG VIEWING PORTS | -- |
| POSTFLIGHT | -- | | | | | OTHER REMARKS | 889 |
| * Coordination With Ground Crew | -- | | | | | SERVICING AND MAINTENANCE | |
| * MEL's/CDL's | 607 | | | | | FUELING | 808 |
| * Placards | -- | | | | | ROUTINE MAINT. | 813 |
| * Trip Papers | -- | | | | | DEICING | 812 |
| * Fuel Remaining | -- | | | | | CONTRACT SERVICES | -- |
| * Post Flight Log Book Entries | -- | | | | | GROUND SVC EQUIP. | 816 |
| * F/A Remaining On Board With PAX | -- | | | | | RAMP/GATE CONDS & ACTIVITY | |
| Other Remarks | 199 | | | | | CONDS OF RAMP OR GATE AREAS | 515 |
| LINE STATION OPERATIONS | | | | | | DEBRIS OR SPILLS | 523 |
| TRIP PAPERS | -- | | | | | CONSTRUCTION | 521 |
| * Load Manifests | 613 | | | | | OBSTRUCTIONS | 519 |
| * Flight Plans | 763 | | | | | VEHICLE OPS | 517 |
| * Weather Reports | 757 | | | | | MARKINGS | 525 |
| * Fuel Slips | -- | | | | | LIGHTING | 505 |
| * Disp/ Flt Rel | 765 | | | | | SNOW/ICE CONTROL | 507 |
| | | | | | | OTHER REMARKS | 599 |

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CHAPTER 2. SPECIFIC TYPES OF INSPECTIONS

SECTION 4. COCKPIT EN ROUTE INSPECTIONS

161. OBJECTIVE OF EN ROUTE INSPECTIONS.

The primary objective of cockpit en route inspections is for an inspector to observe and evaluate the inflight operations of a certificate holder within the total operational environment of the air transportation system. En route inspections are one of the FAA's most effective methods of accomplishing its air transportation surveillance objectives and responsibilities. These inspections provide the FAA with an opportunity to assess elements of the aviation system that are both internal and external to an operator.

A. Elements of the aviation system which are internal to the operator and that can be observed during en route inspections, are items such as the following:

- Crewmembers
- Operator manuals and checklists
- Use of MEL's and CDL's
- Operational control functions (dispatch, flight-following, flight-locating)
- Use of checklists, approved procedures, and safe operating practices
- Crew coordination/cockpit resource management
- Cabin safety
- Aircraft condition and servicing
- Training program effectiveness

B. Elements of the aviation system which are external to the operator and that can be observed during en route inspections, are items such as the following:

- Airport/heliport surface areas
- Ramp/gate activities

- Airport construction and condition
- Aircraft movements
- ATC and airway facilities
- ATC and airspace procedures
- IAP's, SID's, and STAR's
- Navigational aids
- Communications

163. COCKPIT EN ROUTE INSPECTION AREAS.

Inspectors should consider all inspection areas, both internal and external to the operator, to be of equal importance. Four general inspection areas have been identified for observation and evaluation by inspectors during en route inspections (see figure 6.2.4.1., Cockpit En Route Inspection Job Aid). These inspection areas are as follows:

- Crewmember
- Flight conduct
- Airport/heliport
- ATC/airspace

A. The "crewmember" inspection area applies to both flight crewmembers and cabin crewmembers. Inspectors should evaluate such items as crewmember knowledge, ability, and proficiency by directly observing crewmembers performing their respective duties and functions. The applicable job aid contains a list of reminder items which should be observed in the crewmember inspection area. These items are not all-inclusive but represent the types of items inspectors should evaluate during a cockpit en route inspection.

B. The "flight conduct" inspection area relates to 10 specific phases of flight which can be observed during an en route inspection. The job aid contains a list of the

items that should be evaluated by inspectors during these phases of flight. These items are not all-inclusive and in some cases (such as "powerback") may not be applicable to the flight conducted. Inspectors are, however, encouraged to observe, evaluate, and report on as many of these items as possible.

NOTE: Inspectors that are unfamiliar with the operator's specific procedures for operating the aircraft, should comment in their inspection reports on any item they believe should be brought to the POI's attention. Inspectors must use good judgment concerning whether to comment on these items when debriefing crewmembers.

C. The "airport/heliport" inspection area pertains to the various elements of airports or heliports that are passed through during the flight such as runways, taxiways, ramps, and aircraft ground movements. Inspectors should observe and evaluate as many of these elements as possible during an en route inspection.

D. The "ATC/airspace" inspection area pertains to the various elements of Air Traffic Control and national or international airspace systems. These elements should be observed and evaluated by inspectors during en route inspections. From an operational standpoint, these evaluations are a valuable information source which can be used not only to enhance safety with respect to air traffic control and the airspace system, but also to enhance the effectiveness of en route and terminal facilities and procedures.

E. Although these four general inspection areas cover a wide range of items, they are not the only areas that can be observed and evaluated during cockpit en route inspections. Inspectors may have the opportunity to evaluate many other areas, such as line station operations, flight control procedures, and flight attendants in the performance of their duties. These types of inspection areas can often be observed before a flight begins, at en route stops, or at the termination of a flight.

165. GENERAL COCKPIT EN ROUTE INSPECTION PRACTICES AND PROCEDURES.

A. Before conducting en route inspections, it is important that inspectors become familiar with the operating procedures and facilities used by the operator. Inspectors can obtain such familiarization by reviewing pertinent sections of the operator's manuals and by asking questions of, and obtaining briefings from, the POI or

other inspectors who are acquainted with the operator's procedures and facilities. The inspector is encouraged to comment on any procedure believed to be deficient or unsafe in the inspection report. The inspector must use good judgment, however, when debriefing crewmembers about procedures that may be specifically approved for that operator.

B. POI's are responsible for coordinating with their assigned operators to ensure that each operator has established procedures to be used by inspectors for scheduling the observer's seat (jumpseat). POI's must ensure that an operator's procedures allow inspectors to have free, uninterrupted access to the jumpseat. Inspectors should, however, make jumpseat arrangements as far in advance as possible. Since inspectors may have sudden changes in schedule, and may not always be able to provide the appropriate advance notice, POI's must ensure that the operator's procedures are flexible and permit use of an available jumpseat on short notice.

C. Whenever possible, inspectors should plan cockpit en route inspections in a manner that will avoid disruption of operator-scheduled line checks and IOE flights. Should an inspector arrive for a flight and find a line check or IOE in progress, the inspector must determine whether or not it is essential that the cockpit en route inspection be conducted on that flight. If it is essential, the operator must be so advised by the inspector and must make the jumpseat available to the inspector. If the cockpit en route inspection can be rescheduled and the objectives of the inspection can still be met, the inspector should make arrangements to conduct the inspection on another flight. When a required checkride is being conducted by a check airman from the forward jumpseat and the en route inspection is essential, the inspector should occupy the second jumpseat, if one exists. On IOE flights, the check airman should normally occupy one of the pilot seats and the inspector should occupy the forward jumpseat. When it is essential that the en route inspection be conducted on an aircraft that does not have two jumpseats, the check airman must occupy a pilot seat and the inspector should occupy the jumpseat. In such a case, the flight crewmember not being checked must either be seated in the cabin or not accompany the flight.

D. An inspector should begin a cockpit en route inspection a reasonable amount of time before the flight (approximately 1 hour) by reporting at the operations area or at the gate, as specified by the POI. There the inspector must first complete the necessary jumpseat paperwork for inclusion in the operator's passenger manifest and weight and balance documents. The flightcrew should then be

located by the inspector. After the inspector gives a personal introduction to the flightcrew which includes presentation of FAA Form 110A, the inspector must inform the PIC of the intention to conduct an en route inspection. The inspector should then request that, at a time convenient for the flightcrew, the flightcrew present both their airman and medical certificates to the inspector for examination. Also, the inspector should request that, at a convenient time, the flightcrew present flight information such as weather documents, NOTAM's, planned route of flight, dispatch or flight release documents, and other documents with information about the airworthiness of the aircraft to the inspector for examination.

E. Sometimes an inspector cannot meet and inform the PIC of the intention to conduct an en route inspection before boarding the aircraft. In such a case, when boarding the aircraft, the inspector should make appropriate introductions, present FAA Form 110A for the PIC's inspection at the earliest convenient opportunity, and inform the flightcrew of an intention to conduct a cockpit inspection. In this situation a flight attendant will usually be at the main cabin entrance door. One of the flight attendant's primary duties is to ensure that only authorized persons enter the aircraft such as ticketed passengers, caterers, and authorized company personnel. Therefore, an inspector should be prepared to present FAA Form 110A and any applicable jumpseat paperwork to the flight attendant as identification before entering the cockpit. When boarding the aircraft, an inspector should also avoid unnecessarily impeding passenger flow or interrupting flight attendants during the performance of their duties. Also, during this time an inspector usually has ample opportunity to observe and evaluate the operator's carry-on baggage procedures and the gate agent's or flight attendant's actions concerning oversized items. Once inside the cockpit, the inspector should request an inspection of each flight crewmember's airman and medical certificates, if not previously accomplished. When the flightcrew has completed reviewing the aircraft logbooks (or equivalent documents), the inspector should inspect the logbooks to determine the airworthiness status of the aircraft.

F. The inspector should wear a headset during the flight. During cockpit en route inspections, inspectors must try to avoid diverting the attention of flight crewmembers performing their duties during "critical phases of flight." Inspectors must be alert and point out to the flightcrew any apparent hazards such as conflicting traffic. If during an en route inspection, an inspector becomes aware of a potential violation or that the

flightcrew is violating a regulation or an ATC clearance, the inspector must immediately inform the PIC of the situation.

G. Inspectors should use the Cockpit En Route Inspection Job Aid (see figure 6.2.4.1.) while conducting these inspections. This job aid contains a list of reminder items for the specific inspection areas that should be observed and evaluated. It also includes applicable key PTRS words and codes to facilitate the writing of the inspection report. Items may be evaluated during an en route inspection which are not listed on the job aid. For such items, inspectors should use the "other" PTRS comment code for the appropriate inspection area. Inspectors can also use this job aid to make notes during the inspection which can later be transferred to the PTRS Data Sheet.

167. SPECIFIC COCKPIT EN ROUTE INSPECTION PRACTICES AND PROCEDURES

A. Once situated in the cockpit, the inspector should check the jumpseat oxygen and emergency equipment (if applicable) and connect the headset to the appropriate interphone system. The PIC or a designated crewmember should offer to give the inspector a safety briefing. If the PIC does not make such an offer, the inspector should request a briefing. It is important that the inspector monitor all radio frequencies being used by the flightcrew to properly evaluate ATC procedures, flightcrew compliance, transmission clarity, and radio phraseology. The monitoring of these frequencies also ensures that the inspector does not inadvertently interfere with any flightcrew communications. Inspectors should continuously monitor these frequencies to remain aware of the progress of the flight.

B. Inspectors should observe and evaluate the crew during each phase of flight. This should include an evaluation of crewmember adherence to approved procedures and a proper use of all checklists. The inspector should also observe the PIC's crew management techniques, delegation of duties, and overall conduct. All crewmembers must follow sterile cockpit procedures. Some of the areas that should be observed and evaluated during each flight phase are as follows:

(1) *Preflight*: Inspectors should determine that the flightcrew has all the necessary flight information including the appropriate weather, dispatch, or flight-release information; flight plan; NOTAM's; and weight and balance information. MEL items should be resolved in accordance with the operator's MEL and appropriate maintenance

procedures. Inspectors should observe the flightcrew performing appropriate exterior and interior preflight duties in accordance with the operator's procedures.

(2) *Predeparture:* Inspectors should observe the flightcrew accomplishing all predeparture checklists, takeoff performance calculations, and required ATC communications. The flightcrew should use coordinated communications (via hand signals or the aircraft interphone) with ground personnel. Often pushback or powerback clearance must be obtained from the appropriate ATC or ramp control facility. When weight and balance information is transmitted to the aircraft by company radio during the outbound taxi, the flightcrew should follow the operator's procedures as to which crewmember receives the information and completes the final takeoff performance calculations and which crewmember monitors the ATC frequency. The inspector should observe the following:

- Accomplishment of checklists during taxi
- Adherence to taxi clearances
- Control of taxi speed
- Compliance with hold lines
- Flightcrew conduct of a pre-takeoff briefing in accordance with the operator's procedures

(3) *Takeoff:* The takeoff procedure should be accomplished as outlined in the operator's approved maneuvers and procedures document. Inspectors should observe and evaluate the following items or activities during the takeoff phase:

- Aircraft centerline alignment
- Use of crosswind control techniques
- Application of power to all engines
- Takeoff power settings
- Flightcrew call-outs and coordination
- Adherence to appropriate takeoff or V speeds
- Rate and degree of initial rotation
- Use of flight director, autopilot, and

autothrottles

- Gear and flap retraction schedules and limiting airspeeds
- Compliance with the ATC departure clearance or with the appropriate published departure

(4) *Climb:* The climb procedure should be conducted according to the outline in the operator's approved maneuvers and procedures document. Inspectors should observe and evaluate the following items and activities during the climb phase of flight:

- Climb profile/area departure
- Airspeed control
- Navigational tracking/heading control
- Powerplant control
- Use of radar, if applicable
- Use of autoflight systems
- Pressurization procedures, if applicable
- Sterile cockpit procedures
- Vigilance
- Compliance with ATC clearances and instructions
- After-takeoff checklist

(5) *Cruise:* Procedures used during cruise flight should conform to the operator's procedures. Inspectors should observe and evaluate the following areas during the cruise phase of flight:

- Cruise mach/airspeed control
- Navigational tracking/heading control
- Use of radar, if applicable
- Use of turbulence procedures, if applicable
- Monitoring fuel used compared to fuel planning
- Awareness of mach buffet and maximum

performance ceilings

- Coordination with cabin crew
- Compliance with oxygen requirements, if applicable
- Vigilance
- Compliance with ATC clearances and instructions

(6) *Descent:* Procedures used during descents should conform to the operator's procedures. Inspectors should observe and evaluate the following areas during the descent phase of flight:

- Descent planning
- Crossing restriction requirements
- Navigational tracking/heading control
- Use of radar, if applicable
- Awareness of V_{mo}/M_{mo} speeds and other speed restrictions
- Compliance with ATC clearance and instructions
- Use of autoflight systems
- Pressurization control, if applicable
- Area/situational awareness
- Altimeter settings
- Briefings, as appropriate
- Coordination with cabin crew
- Sterile cockpit procedures
- Completion of appropriate checklist
- Vigilance

(7) *Approach:* Procedures used during the selected approach (instrument or visual) should be accomplished as outlined in the operator's maneuvers and procedures document. Inspectors should observe and

evaluate the following areas during the approach phase of flight:

- Approach checklists
- Approach briefings, as appropriate
- Compliance with ATC clearances and instructions
- Navigational tracking/heading and pitch control
- Airspeed control, V_{ref} speeds
- Flap and gear configuration schedule
- Use of flight director, autopilot, autothrottles
- Compliance with approach procedure
- Sinkrates
- Stabilized approach in the full landing configuration
- Flightcrew call-outs and coordination
- Transition to visual segment, if applicable

(8) *Landing:* Procedures used during the landing maneuver should conform to those outlined in the operator's maneuvers and procedures document. Inspectors should observe and evaluate the following areas during the landing phase of flight:

- Before-landing checklist
- Threshold crossing height (TCH)
- Aircraft centerline alignment
- Use of crosswind control techniques
- Sinkrates to touchdown
- Engine spool-up considerations
- Touchdown and rollout
- Thrust reversing and speedbrake procedures
- Use of autobrakes, if applicable

- Braking techniques
- Diverting attention inside the cockpit while still on the runway
- After-landing checklist

(9) *Prearrival:* Prearrival and parking procedures should conform to the operator's procedures as outlined in the appropriate manual. Inspectors should evaluate crew accomplishment of after-landing checklists, groundcrew parking, and passenger-deplaning procedures.

(10) *Arrival:* Inspectors should observe and evaluate the flightcrew complete postflight duties such as postflight checks, aircraft logbook entries, and flight trip paperwork completion and disposition.

C. During the en route inspection, inspectors should observe and evaluate other inspection areas, such as ATC and airspace procedures and airports or heliports the flight transits during the cockpit en route inspection.

(1) When evaluating airports or heliports, inspectors should observe the condition of surface areas, such as ramp and gate areas, runways, and taxiways. The following list contains other areas which may be observed and evaluated by inspectors during cockpit en route inspections:

- Taxiway signs, markers, sterile areas, and hold lines
- Ramp vehicles, equipment, movement control
- Aircraft servicing, parking, and taxi operations
- Obstructions, construction, and surface contaminants (such as ice, slush, snow, fuel spills, rubber deposits)
- Snow control, if applicable
- Security and public safety

(2) During cockpit en route inspections, inspectors have the opportunity to observe and evaluate ATC operations and airspace procedures from the vantage point of the aircraft cockpit. Inspectors may observe and evaluate the following areas from the cockpit:

- Radio frequency congestion, overlap, or blackout areas
- Controller phraseology, clarity, and transmission rate
- ATIS
- Use of full call signs
- Simultaneous runway use operations
- Clearance deliveries
- Acceptable and safe clearances
- Aircraft separation standards
- Acceptability of instrument approach procedures, departure procedures, and feeder routings

D. After the flight has been terminated, the inspector shall debrief the crew on any discrepancies observed and on any corrective actions that should be taken.

(1) If the inspector observed a violation during the flight and intends to recommend enforcement action or intends to make critical comments concerning the crew's performance, the inspector must inform the flightcrew during the debriefing.

(2) If so requested, the inspector may offer to mail a copy of the completed PTRS Data Sheet to those crewmembers whose performances were commented upon as insufficient. To do so, the inspector shall record the crewmember's current address and certificate number.

169. COCKPIT EN ROUTE INSPECTION JOB AID. Figure 6.2.4.1 is an example of the Cockpit En Route Inspection Job Aid which is available on the district office Job Aid Disk.

170. - 180. RESERVED.

FIGURE 6.2.4.1
AIR CARRIER COCKPIT EN ROUTE INSPECTION JOB AID

| | | | | | | | | | | | |
|------------------------------|--|-------------|--|---------|--|-------------|--|------|--|------------------------------|--|
| PTRS ACTIVITY: 1624 DATE: | | AIR CARRIER | | FLT NO. | | A/C REG NO. | | MAKE | | MOD/SERIES | |
| PIC NAME: | | CERT # | | BASE | | FROM | | TO | | RESULTS HB REF VI.2.4. | |

U = UNACCEPTABLE; P = POTENTIAL; I = INFORMATION; E = EXCEEDS

| | | | | | | | | | | | |
|-----------------------|-----|--|--|----------------------|----|-----|--|---------------------------|-----|-----|--|
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HANDBOOK BULLETIN 90-3

OPERATOR TRANSITIONING TO A DIFFERENT REGULATORY PART; OR,
OPERATOR CHANGING TO A DIFFERENT TYPE OF OPERATION WITHIN THE
SAME REGULATORY PART; OR, OPERATOR ADDING A NEW AIRCRAFT TYPE

A. *Purpose.* This bulletin provides POI's with interim guidance concerning an operator: moving from one regulatory Part to another, or changing to a different type of operation within the same regulatory Part, or adding an aircraft to an existing certificate. Permanent guidance on these topics will be in volume 2, chapter 3, sections 3 and 4. These sections should appear in Change 7 of this handbook which is scheduled for publication in January 1991.

B. *Approval Process.* FSDO managers and POI's should view the process of approving the addition of new aircraft to an operator's certificate or of approving operations under a new Part of the FAR's as a partial recertification of the operator. This approval process is covered in volume 2, chapter 2.

C. *Preapplication Phase.* In the preapplication phase, the POI and the operator must decide what documents the operator must create or modify and what proving or verification tests the operator must conduct.

(1) If an operator is applying to conduct operations under a new Part of the FAR's, a new FAA Form 8400-6, "Preapplication Statement of Intent" must be completed. A new compliance statement will be required for operations under the new Part.

(2) If an operator is applying to conduct a different type of operation under Part 121 (i.e. supplemental to flag) or under Part 135, another FAA Form 8400-6 must be completed and submitted. A new compliance statement is also required in such cases.

(3) If an operator is applying to add a new aircraft requiring proving tests, the current compliance

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statement must be reviewed to determine what portion will require amendment.

(4) The applicable Air Carrier Certification Job Aids (see figures 2.1.1.1 through 2.1.1.3), should be used to determine the required actions. The "Date item accomplished/ready for FAA insp." column of the job aid should be marked "N/A" for those items that will not be required. The POI should coordinate informally with the Regional Flight Standards Division (RFSD). The RFSD may coordinate with AFS-200, if required.

D. *Formal Application Phase.* The operator must submit a formal letter of application. The application must contain those attachments listed in volume 2, paragraph 85, which have been determined as applicable to the circumstances in the previous phase.

E. *Document Compliance Phase.* In the document compliance phase, the process described in volume 2, section 3 is applicable.

F. *Demonstration and Inspection Phase.* In the demonstration and inspection phase, only the applicable events of the job aid have to be accomplished, otherwise the guidance in volume 2, section 4 is applicable. Since unique circumstances surround each recertification, the POI shall informally coordinate with the RFSD before closing this phase.

G. *Certification Phase.* In the certification phase, the guidance in volume 2, section 5 should be followed.

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HANDBOOK BULLETIN 90-4

NEW FEDERAL AVIATION REGULATION PART 91
CROSS-REFERENCE TABLE
Effective August 18, 1990

References to FAR 91 in Order 8400.10 are to the old version of the regulation until the references can be revised.

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| §91.4 Pilot-in-command of aircraft requiring more than one pilot | §91.5 |
| §91.5 Preflight Action | §91.103 |
| §91.6 Category II and III operations: General operating rules | §91.189 |
| §91.7 Flight crewmembers at stations | §91.105 |
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| §91.11 Alcohol and drugs | §91.17 |
| §91.12 Carriage of narcotic drug, marijuana, depressant or stimulant drugs or substances | §91.19 |
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